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PUBLICATIONS

OF THE

WASHBURN OBSERVATORY

OF THE

UNIVERSITY OF WISCONSIN.

VOL. XI.

MERIDIAN OBSERVATIONS FOR STELLAR PARALLAX.

First Series, 1893–'96.

By ALBERT S. FLINT,

Assistant Astronomer.

MADISON, WIS.:
Democrat Printing Company, State Printer,
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The Washburn Observatory,

FOUNDED BY

Cadwallader C. Washburn.

Born 1818; Died 1882.

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INTRODUCTION

GENERAL REMARKS.

THE present work was suggested some years ago by Professor COMSTOCK, director of this observatory, and Professor ASAPH HALL, U. S. N., then consulting director, after the appearance of the excellent results obtained by Professor J. C. KAPTEYN who was the first to make this particular employment of the meridian instrument, and whose work referred to may now be found published in full in Bd. VII of the *Annalen der Sternwarte in Leiden.*

The observations extended from October 16, 1893, to August 4, 1896, except for absences of the observer for about one month on each of two occasions not anticipated when the work was begun. The observations were followed very closely, so that the following figures from the present work are a fair indication of the percentage of nights available for astronomical observation at this station for the period involved. It should be said, however, that observations were made on a number of nights when the condition of the star images was not such as to warrant the undertaking of observations in general. This was done to fill out a certain number of observations on some stars rather than to leave them deficient, and to test the capacity of the method under different conditions. In making up the table the evenings and the mornings were counted separately as dates of observation.

	Number of Dates of Observation.	Total Number of Dates in Periods of Observation.	Per Cent. of Dates of Observation.
Evening.	336	848	39.6
Morning.	280	942	29.7
Total.	616	1790	4.4
Ratio of morning dates of observation to evening dates of observation, 0.83.			

With the last ratio given in the table may be compared the following from the data given in *Publications of the Washburn Observatory,* Vol. VII. p. 6.

Ratio of clear mornings to clear evenings, 1884–'89, 0.79.

The observations were distributed between evening and morning as follows, where the observation of a parallax star together with its comparison stars, is counted as one observation:—

Number of evening observations,	1876
Number of morning observations,	1783
Total,	3659

All the observations of the stars, the reading of the chronograph sheets, and the greater part of the reductions were made by myself. The reductions were made to a considerable extent by several students of this university, who were employed in turn upon the work and to whom the observatory is indebted for faithful service. In this connection acknowledgment is especially due for long continued and intelligent service to Misses GERTRUDE C. ROSS and ESTHER GORDON and to Mr. WARREN A. HOYT.

APPARATUS EMPLOYED IN THE OBSERVATIONS.

The instrument employed was the REPSOLD meridian circle of 12.2 c. m. aperture with ocular giving a power of 180 diameters. The star images were observed on the fixed reticule of transit threads and the times recorded on the chronograph in the usual manner in conjunction with the Hohwü sidereal clock. The bright thread illumination in this instrument has never been satisfactory, and the present observations were made on dark spider webs in an illuminated field.

A screen apparatus to reduce the apparent magnitudes of the brighter stars, was devised and mounted for this work as follows: Two steel wires were stretched between the north and south walls of the observing room above the instrument and a little to either side. Upon these was mounted a rectangular frame of light bar iron, which could be moved north and south along the wires. This frame carried a rotating axis directed east and west across the center of the frame, and from this axis branched four flat, open wings framed of light brass and set in planes at right angles to one another intersecting in the axis. Brass wire screens were stretched across three of these wings in one, two, and three layers respectively, each layer having nearly 20 meshes to the centimeter excepting one which had nearly 40. The fourth wing was left vacant that faint stars might be observed with the entire apparatus in position. Any one of the screens could be turned into a position in front of the objective and at right angles to the sight line of the telescope. This was done with ample accuracy by simple inspection from the observer's chair, oftentimes with the aid of a small electric hand lamp. The motion of rotation was effected by means of an endless cord passing around a wooden drum mounted on the axis; and the cord was brought over a system of pulleys to the inner side of the west pier within

easy reach of the observer. The entire frame was moved north and south by means of a second cord attached to each end of the frame and brought by means of a second set of pulleys to the inner side of the west pier. The entire apparatus was thus separate from the instrument; but it had the objection that there was a limit in zenith distance beyond which the cross bars of the frame would interfere in front of the objective, and a further limit beyond which the frame could not be moved at all. The former limit was found in practice to be about 65°. No material deterioration of the star images was noticed as viewed through the screens, while in the case of poor images a considerable amount of stray light was shut out.

The single, double, and triple thicknesses of screen, designated by I, II, and III respectively in the tables, diminished the apparent magnitudes of stars by very nearly 2.5, 5.0, and 7.5 respectively, according to numerous estimates made early in the course of the observations upon miscellaneous stars observed with and without the screens. A more independent determination of their effects is derived from a comparison of the mean estimated magnitudes of the present work with the photometric magnitudes of the Harvard *Meridian Photometry*, for all stars observed through the screens. These catalogue magnitudes were not in the observer's mind at any time in the course of the observations and in many cases differ largely from the nominal magnitudes entered in the observing list. These comparisons give for screens I, II, and III a diminution of magnitude of 2.53, 5.01, and 7.64 respectively, from 35, 11, and 5 stars for the three screens in order. The probable error of the difference between the catalogue magnitude and the estimated magnitude as reduced by the screen, is ±0.13 on a single star.

Care was taken to keep the instrument in as free a condition as possible as a transit instrument. Soon after the series of observations was begun the clamp arm was detached from the pier and allowed to swing with the telescope, so that the latter rested only on the friction rollers and the pivots. As a rule, the instrument was removed from its bearings once a month and the pivots and bearings wiped and oiled; but the position remained Circle East throughout the observations.

THE METHOD OF OBSERVATION.

The intention at first was to observe each star through three epochs only, two maxima and one minimum of parallax, or the reverse; and some stars were left with that extent of observation. The series of observations were interrupted also by long absences of the observer on two occasions, as already mentioned. Consequently a number of the stars have an insufficient or broken series of observations, as shown in Table VII. On many nights in the summer and early autumn of the year 1894 the sky was very thick with smoke from the great forest fires in the northern part of the state; so that sometimes the brightness of the stars at the zenith

was diminished by two magnitudes and α *Scorpii*, in the south, became invisible to the naked eye. Star 252 of the tables could not be observed at all in its second period for this reason.

Each parallax star was observed with two comparison stars one preceding, the other following. As each star came into the field the instrument was shaken gently about the rotation axis by means of the ring handle in order to avoid any possible subsequent settling into position in the course of the observation. The observer kept his thumb resting lightly on the chronograph key ready to make the signal for the transit of each thread. In very cold weather gloves were worn, though their use was avoided as much as possible. The habit of the observer was to wait until the image of the star was actually seen bisected by the thread and then to make a deliberate signal; but in observing an extremely faint star, with dim illumination, the thread had to be defined by a considerable portion of its length kept in view, and an estimate, rather than an observation, was made of the transit on the thread. In the case of a double star the mean was observed unless otherwise noted.

The chronograph sheets were read to hundredths of a second. Previous to November 13.6, 1893, the motion of the chronograph was such as had been employed ordinarily for observations with the meridian circle. Subsequent to that date the motion at double speed was employed in general. With this motion the space on the sheet corresponding to one second varied from 18 mm. at some periods of the observations to 19 mm. at others.

THE OBSERVING LIST.

The list of stars to be observed for parallax, together with their comparison stars, is given in Table IV, where the former are distinguished by the heavier type of their reference numbers in the first column. The parallax stars consisted primarily of all stars which have a known proper motion of one second of arc or more in a great circle, and which were sufficiently bright for the instrument and far enough north to be observed at this latitude. Later, a number of Professor Burnham's double stars having considerable proper motion were added to the list, and a few other stars. Some of them, however, were taken on too late to secure any considerable number of observations in this series, and some stars of the original list proved to be too faint for observation. There remain 96 parallax stars, the observations of which were subjected to a uniform process of reduction by the method of least squares.

Twelve of the parallax stars are binaries; but the period in each case is so large that the orbital motion could have no sensible effect on the parallax to be derived from the observations, except in the case of α *Canis Majoris* and possibly in that of α *Canis Minoris*, which are referred to in the notes appended to those stars in Table VII.

The comparison stars were selected from the *Bonner Durchmusterung*, so far as that extends, and from the *Argentine General Catalogue* for stars farther south. These were selected with special reference to symmetry of position, and so it happened in some cases that there were adopted stars of different magnitude from what otherwise would have been chosen; for experience has shown that symmetry of apparent magnitude between the parallax star and its comparison stars, is of greater importance than symmetry of position.

THE METHOD OF REDUCTION.

The reduction of the observations consisted in principle of a comparison of the observed time of transit of the parallax star across the true meridian with the mean of the corresponding times for the two comparison stars. The observations belonging to each parallax star were subjected to a solution by the method of least squares, in which three unknowns were involved — the correction to the assumed difference of right ascension, the correction to the assumed difference of proper motion, and the parallax assumed to pertain to the middle star alone. But in order to present the formulae employed, it will be more convenient to consider first the case of two stars.

If α_1 and δ_1 denote respectively the right ascension and declination of a comparison star, whether preceding or following, and α_2 and δ_2 denote the corresponding coördidates for the parallax star, we have for the mean right ascensions at the selected epoch 1895.0

$$\alpha_1 = T_1 + \varepsilon_1 + \Delta T_1 + m + c_1' \sec \delta_1 + n \tan \delta_1 + \Delta\alpha_1 + (1895.0 - t)\ (\mu_1 + \Delta\mu_1) - P_1\pi_1 ,$$
$$\alpha_2 = T_2 + \varepsilon_2 + \Delta T_2 + m + c_1' \sec \delta_2 + n \tan \delta_2 + \Delta\alpha_2 + (1895.0 - t)\ (\mu_2 + \Delta\mu_2) - P_2\pi_2 .$$

The significations of the symbols employed in the second members of the equations are as follows:—

T_1 = the mean of the times observed on the individual threads for the comparison star;

ε_1 = the correction to T_1, due to unknown errors;

ΔT_1 = the clock correction at the epoch T_1;

m and n = Bessel's constants, defining the position of the rotation axis;

c_1' = the equatorial interval to middle thread assumed to be common to the two stars and combined with the collimation (including the constant of diurnal aberration for the latitude of the station);

$\Delta\alpha_1$ = the reduction to 1895.0 for the comparison star on account of precession and nutation;

t = the epoch of the observation;

μ_1 = the assumed proper motion of the comparison star in right ascension;

$\Delta\mu_1$ = the unknown correction to μ_1;

P_1 = the parallax coefficient of the comparison star at the time of observation;

π_1 = the unknown parallax of the comparison star in seconds of arc;

and where the symbols denote the corresponding quantities for the parallax star when the suffix 1 is replaced by 2, except in the case of c_1'.

If we put

$$r = \text{the clock rate}, \qquad \tau = t - 1895.0,$$
$$\Delta_1 C = \sec \delta_2 - \sec \delta_1, \qquad P_1 = P_2 = P,$$
$$\Delta_1 \tan \delta = \tan \delta_2 - \tan \delta_1, \qquad \pi_1 = 0,$$
$$\pi_2 = \pi,$$

and subtract the equation for α_1 from that for α_2, we have

$$\alpha_2 - \alpha_1 = (T_2 - T_1) + (\varepsilon_2 - \varepsilon_1) + r(\alpha_2 - \alpha_1) + \Delta_1 C.c_1' + \Delta_1 \tan \delta.n + (\Delta\alpha_2 - \Delta\alpha_1) + \tau(\mu_1 - \mu_2) + \tau(\Delta\mu_1 - \Delta\mu_2) - P\pi.$$

If we put

u = the sum of all the terms of the second member of the equation for $\alpha_2 - \alpha_1$, except the second and the last two,

u_0 = an assumed value for $\alpha_2 - \alpha_1$ for the epoch 1895.0,

$d\Delta\alpha$ = the correction to u_0 required to produce the true value,

$d\Delta\mu = \Delta\mu_2 - \Delta\mu_1$,

$v_1' = \varepsilon_2 - \varepsilon_1$,

we may write

$$\alpha_2 - \alpha_1 = u_0 + d\Delta\alpha;$$

and substituting in the equation for $\alpha_2 - \alpha_1$, we have

$$d\Delta\alpha + \tau.d\Delta\mu + P\pi + (u_0 - u) = v_1'.$$

We have for the parallax coefficient

$$P = \tfrac{1}{15} R\, m \sin (L - M) \sec \delta_2:$$

where

R = the radius of the earth for the station;

L = the longitude of the sun at the time of the observation;

and m and M are determined by the equations

$$m \sin M = \sin \alpha_2,$$
$$m \cos M = \cos \alpha_2 \cos \varepsilon,$$

in which ε is the inclination of the ecliptic.

We may put $R = 1$ without sensible error and, employing conventional symbols, we may write for the observation equation,

$$x' + \tau y' + \sin (L - M)\, P' z' + n_1' = v_1';$$

where we have

$$P' = \frac{m}{15} \sec \delta_2,$$

and where the significations of the remaining symbols are apparent by comparison of this form of the equation, term by term, with the preceding.

The absolute terms n_1' were computed to three decimal places—except for a few stars of high declination for which two places were ample—while two places were sufficient for the coefficients τ and sin $(L-M)$ in the solutions of the equations for the values of the unknowns. The form of the observation equation, therefore, was better adapted to the solution by writing

$$10x' + \tau 10y' + \sin(L-M)\ 10P'z' + 10n_1' = 10v_1',$$

or

$$x + \tau y + \sin(L-M)\ z + n_1 = v_1 .$$

Consequently we have, for the results of a solution,

$$d\Delta\alpha = \tfrac{1}{10}\, x, \quad \text{in seconds of time,}$$
$$d\Delta\mu = \tfrac{1}{10}\, y, \quad \text{in seconds of time,}$$
$$\pi = \frac{1}{10P'}\, z = \frac{3}{2}\,\frac{\cos\delta_2}{m}\, z, \quad \text{in seconds of arc.}$$

But, since the observations were assigned different weights, each observation equation is to be multiplied by the square root of its weight, and we have

$$\sqrt{p}.\ x + \sqrt{p}.\ \tau\, y + \sqrt{p}.\ \sin(L-M)\ z + \sqrt{p}.\ n_1 = \sqrt{p}.\ v_1 ,$$

or

$$ax + by + cz + n = v,$$

in which form the equations were solved by the method of least squares.

When the observations of the parallax star and both comparison stars were reduced in one solution, as was done in the first instance for the entire list, the data of one observation of all three stars were combined in a single equation. If we substitute the suffix 3 for the suffix 1 in the equation for $\alpha_2 - \alpha_1$, except in the fourth and fifth terms of the right hand member, we shall have the corresponding equation for the difference in right ascension between the parallax star and the other comparison star:—

$$\alpha_2-\alpha_3 = (T_2-T_3) + (\varepsilon_2-\varepsilon_3) + r\ (\alpha_2-\alpha_3) + \Delta_2 C.c_2' + \Delta_2 \tan\delta.n + (\Delta\alpha_2-\Delta\alpha_3) + \tau\ (\mu_2-\mu_3) + \tau\ (\Delta\mu_2-\Delta\mu_3) - P\,\pi;$$

where the symbols with the suffix 2 are employed in the fourth and fifth terms of the right hand member to indicate the corresponding differences for the second comparison star.

Adding the two equations we may write

$$2\,\alpha_2-(\alpha_1+\alpha_3) = DT+\varepsilon+r\,D\alpha+\Delta_1 C.c_1' + \Delta_2 C.c_2' + D\tan\delta.n + D\Delta\alpha + \tau D\mu + \tau.dD\mu - 2\,P\,\pi.$$

In this equation we have

$$DT = 2\,T_2-(T_1+T_3),$$

or, in some cases, as explained in the following,

$$D T = (T_2 - T_1) + (T_2' - T_3);$$
$$\varepsilon = 2\,\varepsilon_2 - (\varepsilon_1 + \varepsilon_3);$$
$$\Delta_2 C = \sec \delta_2 - \sec \delta_3; \text{ and}$$

c_2' = the equatorial interval for the second and third stars corresponding to c_1' for the first and second stars.

The second of the expressions for DT preceding corresponds to the case where the differences between the times of the second and third stars are not all on the same threads as between the first and second stars; and the symbol T_2' indicates the separate mean of times for the second star corresponding to the mean of the times for the third star. In the remaining terms of the second member of the equation for $2\,\alpha_2 - (\alpha_1 + \alpha_3)$ the symbol D has a signification with reference to the symbols following it similar to that which it has in the first of the preceding expressions for DT; for example,

$$D\Delta\alpha = 2\,\Delta\alpha_2 - (\Delta\alpha_1 + \Delta\alpha_3).$$

Whichever of the two expressions for DT holds good, it is evident that the unknowns are represented as follows:—

$$d.D\alpha = d_1\Delta\alpha + d_2\Delta\alpha = \tfrac{1}{10}\,x, \text{ in seconds of time,}$$
$$d.D\mu = d_1\Delta\mu + d_2\Delta\mu = \tfrac{1}{10}\,y, \text{ in seconds of time,}$$
$$\pi = \frac{1}{20P'}\,z = \frac{3}{4}\,\frac{\cos\delta_2}{m}\,z, \text{ in seconds of arc;}$$

where x, y, and z have significations for the three stars corresponding to those which they had in the previous formulae for the case of two stars.

The computation of the term for precession and nutation requires further explanation. If we employ the Besselian star-numbers and star-constants and put

t_o = the beginning of the year of observation,
$$A_1' = t_o - 1895.0 + A,$$
$$a_1' - a_2' = a_1 - a_2 = 1^s.3368\,(\sin\alpha_1 \tan\delta_1 - \sin\alpha_2 \tan\delta_2),$$

we have in the case of an observation with one comparison star

$$\Delta\alpha_1 = (1895.0 - t_o)\,a_1 - Aa_1 - Bb_1 - Cc_1 - Dd_1,$$
$$\Delta\alpha_2 = (1895.0 - t_o)\,a_2 - Aa_2 - Bb_2 - Cc_2 - Dd_2;$$

whence

$$\Delta\alpha_2 - \Delta\alpha_1 = A'\,(a_1' - a_2') + B\,(b_1 - b_2) + C\,(c_1 - c_2) + D\,(d_1 - d_2).$$

It was most convenient to compute these terms for equal intervals of time, ten days in general, and interpolate their sums for the dates of observation. The computation might be made readily with the aid of a slip of paper on which are written

the logarithms of the differences of the constants and which could be placed on the pages of the Ephemeris containing the logarithms of the star-numbers. But the computation was made more conveniently by means of values of the star-numbers themselves interpolated from a table which was suggested and computed by Professor COMSTOCK and which is given as Table VI at the close of this publication.

The differences of the star-constants were computed as follows. Suppose the computation is to be made for a set of three stars, and let

$$m = \sin\alpha \tan\delta, \qquad p = \cos\alpha \sec\delta,$$
$$n = \cos\alpha \tan\delta, \qquad q = \sin\alpha \sec\delta.$$

Then, employing a notation similar to that previously introduced, we have

$$Dm = m_1 + m_3 - 2\,m_2, \qquad Dp = p_1 + p_3 - 2\,p_2,$$
$$Dn = n_1 + n_3 - 2\,n_2, \qquad Dq = q_1 + q_3 - 2\,q_2,$$

and

$$D\Delta\alpha = \tfrac{1}{15}\,(20.052\,A'Dm + BDn + CDp + DDq), \text{ in seconds of time.}$$

For tabulation and reference it will be more convenient to have the several star-constants expressed in seconds of time, and so we may write

$$D\Delta\alpha = A'Da + B\,Db + C\,Dc + D\,Dd;$$

where a, b, c, and d denote the Besselian star-constants, and the signification of the successive terms of the second member of the equation is readily seen by comparison with the preceding equation for $D\Delta\alpha$.

The constants log m and M of the parallax coefficient were computed originally for each star but could have been interpolated more conveniently from such a table as is given at the close of this publication, Table III, which was computed later and employed as a control upon the individual values. The values of L were taken conveniently from the *Berliner Jahrbuch* because the solar ephemeris is given there in one body for all the months of the year. Since the coefficients in the observation equations were to be computed to only two decimal places, it was deemed sufficient to take the values of L—M with an error not to exceed $\pm 1^\circ.0$. To facilitate the computation 15h. was adopted as the interval from Berlin noon for all of the evening observations and 23h. as that for all of the morning observations. An average value of the increase in the sun's longitude L in one hour is $2'.5$; so that two constant interpolation terms were employed, $+0^\circ.6$ and $+1^\circ.0$, corresponding to the intervals 15h. and 23h. respectively. These constants were combined conveniently with M. Also, in subtracting M from the values of L given in the ephemeris, the former was taken to the nearest degree only, while for the latter the printed whole number of degrees only was considered. This required a compensating correction of $+0^\circ.5$

which also was combined with M. That is, two values of M were employed for each star, as follows:—

Evening observations, $M_1 = M - 0^{\circ}.6 - 0^{\circ}.5 = M - 1^{\circ}.1$;
Morning observations, $M_2 = M - 1\ .0 - 0\ .5 = M - 1\ .5$.

It is possible that the fractions of a degree neglected in the case of L may be of the same sign for all the observations of a single epoch if these were comprised within an interval of ten days or less; but the final effect of such an error must be extremely small.

The values of all terms entering into the reduction for each star and those of the unknowns resulting from the solution are given in Table VII.

In forming the normal equations the products were found in most cases by the aid of CRELLE'S table, but in a number of solutions the normals were formed by BESSEL'S method of sums and squares. It may be of interest here to note that a comparison of the two methods was made upon the stars 29 and 30 of the tables. These stars were similar in their observation equations and had 52 and 53 observations respectively. The s check was applied throughout in each solution—as it was in all of the solutions—so that fifteen columns of numbers were involved in each. In the solution for star 29, by the method of sums and squares, the time occupied was 4h. 39m. and there occurred ten errors; while in the solution for star 30, by the method of products, the time occupied was 3h. 56m. and there occurred thirteen errors—a difference of 43m. in favor of the method of products. The student assistant engaged upon the work preferred the latter method as also the more convenient.

THE SYSTEM OF WEIGHTS.

The normal observation of a star consisted of the transit across 25 threads of the fixed reticule, but some sets of stars were confined to a less number of threads on account of the shortness of the time-intervals between them. Also, the number of threads on which stars were observed was reduced in many cases on account of the extreme faintness of the stars or too disturbed a condition of their images.

Images of stars situated between the zenith and the equator and perhaps farther south, were subject to a peculiar agitation which at times would obliterate a star image as bright as of the sixth or seventh magnitude. This was noticed whenever the temperature outside was falling and a northerly wind blowing; and the center of agitation would shift in zenith distance with the opening and closing of the north windows and shutters. It seemed to be due in large part to the ventilation of a partly closed attic loft over the room by means of a draft of air passing out and up through the observing slit. On a number of nights stars near the south horizon

had steady and fairly good images while those near the zenith were hardly worth observing. As bearing upon this point the following comparison may be presented between the probable errors of right ascensions observed on nights when the temperature was rising considerably and those observed when it was falling to a corresponding extent. During the observations of 1892–'93 there were 16 dates on which the temperature rose 8° F. or more, independently of ordinary diurnal change, and 16 dates on which it fell 8° or more. From 173 observations on 23 stars observed on nights of the former class, the probable error of a single right ascension was $\pm 0^s.018$; while from 169 observations on 32 stars observed on nights of the latter class, the probable error was $\pm 0^s.027$—a material increase. Reference also to the comparison of mean values of the probable error of a single observation in the present work, where these values are given in the explanation of Table VII following, will show that stars at moderate south zenith distances were not superior to stars far south in accuracy of observation.

Since, then, it appears in a large number of cases that many of the observations on a given parallax set were inferior, a system of weights was adopted for the observation equations. These depended solely upon the following factors:—

The number of threads on which the stars were observed on a given date,

The state of the star images, and

Whether any of the stars of a set were difficult to observe on account of extreme faintness of the star image.

The system was based upon certain weights derived from an investigation of the probable error of an observation of a single star on a single thread. For this the differences between the times of the stars on the individual threads were available. These differences were already written in the observing books; but, to simplify the reduction, only pairs of differences situated symmetrically to the middle thread were employed, and these were selected either at random or so as to include all cases falling under the conditions named. The results, distributed in a number of groups, are given in the following table where observations are excluded in which either star was noted as very faint or extremely faint. In classifying the results according to the state of the images, regard was had here to the steadiness of the images rather than to their quality. The number of pairs of transits entering into each value of the probable error is given under n.

All of the probable errors, in this and the following two tables, are means of the actual values for the individual stars, that is, not changed on account of position in declination and unaffected by any other reduction.

OBSERVED PROBABLE ERRORS OF AN OBSERVATION OF A SINGLE STAR ON A SINGLE THREAD.

Limits of Decl.	−30° to −10°		−10° to +20°		+20° to +40°		+40° to +50°		+50° to +60°	
Quality of Star Images.	Prob. Err.	n	Prob. Err.	n	Prob. Err.	n	Prob. Err.	n	Prob. Err.	n
0 —— 0.5	$\pm 0^{s}.035$	50	$\pm 0^{s}.050$	100	$\pm 0^{s}.052$	92	$\pm 0^{s}.064$	33		
2 - 2.5 - 3	.034	149	.031	271	.036	120	.052	105	$\pm 0^{s}.043$	50
4.5 —— 5	.029	160	.025	340	.030	290	.036	150	.041	186

Limits of Decl.	−10° to +20°					
Season.	Winter, 1893-94.		Summer, 1894.		Summer, 1896.	
Quality of Star Images.	Prob. Err.	n	Prob. Err.	n	Prob. Err.	n
2 - 2.5 - 3	$\pm 0^{s}.034$	114	$\pm 0^{s}.029$	157		
4.5 —— 5	.021	70	.024	132	$\pm 0^{s}.027$	138

Preliminary solutions of the observation equations had been made for ten of the parallax stars and in them the weight unity was assigned to each equation. The residuals v of these equations thus furnished a test of the applicability of the probable errors of the preceding table; as is shown in the following table.

COMPARISON WITH THE RESIDUALS OF THE PRELIMINARY SOLUTIONS FOR TEN STARS.

Grade of the Images.	Average $v \cos \delta$, with Reference to—		Number of Equations.	Average Prob. Err. of a Single Thread. Decl. $-10°$ to $+50°$.
	Steadiness of Images.	Quality of Images.		
0.5	$^s0.043$	$^s0.053$	15	$\pm^s0.053$
1.5	.039	.044	28	
2.5	.032	.032	90	± .040
3.5	.028	.028	120	
4.5	.025	.025	162	± .030

The quality of the images appears here to have somewhat more influence than their steadiness, and the residuals corresponding to the different grades of the former appear more in consonance with the probable errors presented. The following simple values for the latter are adopted, therefore, for the three grades of images, with special reference to their quality:—

Poor, $\pm^s0.055$; Fair, $\pm^s0.040$; Good, $\pm^s0.030$.

In order to ascertain the effect which faintness of the star image would have upon these probable errors, a large number of differences of transits similar to those employed in the preceding were collected from observations scattered through the entire period and for cases alone where one only of a pair of stars was noted as very faint or extremely faint. Such cases were selected, rather than those where both stars were abnormally faint, in order to secure a larger body of data subject to one formula. Stars were noted as extremely faint when the observer could not hold their images steadily in view while they approached and passed a thread in the instrument. The results are given in the following table, and the combined results for brighter stars are also given for the sake of comparison; but it must be borne in mind that, in computing the probable errors given in the sixth and ninth columns, no distinction was made between the bright member and the faint member of a pair of stars, though according to the formula the numbers given are probable errors for a single star. The number of pairs of stars entering into each determination of the probable error is indicated by m and the number of pairs of transit times by n,

PROBABLE ERROR OF AN OBSERVATION OF A SINGLE STAR ON A SINGLE THREAD.

Quality of Star Images.		Bright.			Very Faint.			Extremely Faint.		
		Probable Error.	m	n	Probable Error.	m	n	Probable Error.	m	n
0——0.5	Very poor.	$\pm 0^s.050$	35	275	$\pm 0^s.050$	20	196	$\pm 0^s.067$	7	58
2–2.5–3	Fair.	.035	71	695	.047	28	217	.054	30	192
4.5——5	Good.	.031	109	1126	.042	24	219	.065	25	168

If we put

r_1 = the probable error of a transit on a single thread for a bright star,

r_f = the additional probable error of a transit on a single thread due to extreme faintness of a star,

r = a probable error of a transit on a single thread combined of the probable errors for a bright and an extremely faint star, such as the probable error in the ninth column of the preceding table,

we have

$$2r^2 = 2r_1^2 + r_f^2; \qquad r_f = \sqrt{2(r^2 - r_1^2)}$$

The resulting values of r_f corresponding to the three grades of images presented in the table are:—

Very poor, $\pm 0^s.063$; Fair, $\pm 0^s.058$; Good, $\pm 0^s.080$.

The last value seems too large; and, in fact, some observations for which the state of the images was below grade, 3.5 to 4, were employed for the determination of the third value of r. Half weight, consequently, was given to the third value of r_f and the weighted mean adopted; and the probable errors assumed for the computation of the weights were

Star images very good, 4.5 to 5; $r_1 = \pm 0^s.030$, $r_f = \pm 0^s.064$.

Star images very poor, 0 to 0.5; $r_1 = \pm 0.055$, $r_f = \pm 0.064$.

In order to ascertain the theoretical relations between the weights and these probable errors, we have the following considerations:—

All of the observations—with the exception of a comparatively few cases where the omission of threads is very irregular on account of extreme faintness of the star

images combined with a disturbed condition of those images—will fall into two classes:—

Class A; where all three stars of a parallax set were observed on the same threads throughout on a given date.

Class B; where one of the comparison stars was observed on a series of threads less in number than the series on which the parallax star and the other comparison star were observed but included in the latter series.

As already shown, the form of the absolute term in an observation equation for class A is

$$u = 2T_2 - (T_1 + T_3).$$

If we put

r_u = the probable error of an absolute term u as depending only upon that for a transit on a single thread, we have in general for the weight,

$$p' = \frac{1}{r_u^2};$$

and if we put

m = the number of threads on which the stars were observed,

and designate the stars of a set by 1, 2, 3, in the order of right ascension, we have for the several cases to be considered:—

A_1. All three stars extremely faint, $\quad p' = \dfrac{m}{6(r_1^2 + r_f^2)}$.

A_2. Star 2 alone extremely faint, $\quad p' = \dfrac{m}{2(3r_1^2 + 2r_f^2)}$.

A_3. Star 2 bright but stars 1 and 3 both extremely faint, $\quad p' = \dfrac{m}{2(3r_1^2 + r_f^2)}$.

A_4. Star 1 alone, or star 3 alone, extremely faint, $\quad p' = \dfrac{m}{6r_1^2 + r_f^2}$.

A_5. All three stars bright, $\quad p' = \dfrac{m}{6} \cdot \dfrac{1}{r_1^2}$.

For class B suppose star 1 was observed on a series of threads m_1 in number and stars 2 and 3 on a series m_2 in number and including the identical m_1 threads on which star 1 was observed. Then the form of the absolute term is

$$u = (T_2 - T_1) + (T_2' - T_3);$$

where we have

$T_2 - T_1$ = the mean of the m_1 differences between the transit times on stars 1 and 2 respectively,

$T_2' - T_3$ = the mean of the m_2 differences between the transit times on stars 2 and 3 respectively.

In order to express u in terms of observed quantities that shall be independent of each other, we may write

$$u = \left(\frac{1}{m_1} + \frac{1}{m_2}\right)\left(\Sigma T_2\right)_1 + \frac{1}{m_2}\left(\Sigma T_2\right)_2 - \frac{1}{m_1}\Sigma T_1 - \frac{1}{m_2}\Sigma T_3;$$

where we have

$(\Sigma T_2)_1$ = the sum of the m_1 transit times on star 2 which occur on the same threads with the transits of both stars 1 and 3,

$(\Sigma T_2)_2$ = the sum of the remaining $m_2 - m_1$ transit times on star 2 which occur on the same threads with the transit of star 3 alone.

In order to trace the derivation of a set of formulae convenient for the computation of the weights, we may take, as an example, the case where star 2 alone is extremely faint. From the expression last given for u we have

$$r_u^2 = \frac{2}{m_1}\left(1+2\frac{m_1}{m_2}\right) r_1^2 + \frac{1}{m_1}\left(1+3\frac{m_1}{m_2}\right) r_f^2;$$

which may also be written

$$r_u^2 = \frac{r_f^2}{m_1}\left\{2\left(1+2\frac{m_1}{m_2}\right)\frac{r_1^2}{r_f^2} + \left(1+3\frac{m_1}{m_2}\right)\right\}.$$

If we put

$$l = \frac{m_1}{m_2}, \qquad q = 2\left(1+2\frac{m_1}{m_2}\right)\frac{r_1^2}{r_f^2},$$

we have

$$p' = \frac{1}{r_u^2} = \frac{m_1}{r_f^2}\cdot\frac{1}{q+3l+1}.$$

It is evident that it will make no difference in the weight of an observation equation whether it be star 1 or star 3 which was observed on the less number of threads m_1, so long as both comparison stars are liable to the same probable error; but the case where star 3 alone is extremely faint will be different evidently from that where star 1 alone is extremely faint; and therefore there will be one more case to be considered in class B than in class A.

We may derive, then, by a process similar to that just shown in illustration of one case—which may be designated as case B_2—the following expressions for the weights in the several cases of class B:—

B_1. All three stars extremely faint, $p' = \frac{m_1}{r_f^2}\cdot\frac{r_1^2}{r_1^2+r_f^2}\cdot\frac{1}{q}$.

B_2. Star 2 alone extremely faint, $p' = \frac{m_1}{r_f^2}\cdot\frac{1}{q+3l+1}$.

B_3. Star 2 bright but stars 1 and 3 both extremely faint, $p' = \frac{m_1}{r_f^2}\cdot\frac{1}{q+l+1}$.

B_4'. Star 1, or star 3, observed on the less number of threads m_1 and alone extremely faint, $p' = \frac{m_1}{r_f^2}\cdot\frac{1}{q+1}$.

B_4''. Star 1, or star 3, observed on the greater number of threads m_2 and alone extremely faint, $p' = \frac{m_1}{r_f^2}\cdot\frac{1}{q+l}$.

B_5. All three stars bright, $p' = \frac{m_1}{r_f^2}\cdot\frac{1}{q}$.

These weights may be multiplied by a constant, in order to apply them conveniently to the solution of the observation equations by the method of least squares. Two significant figures appear ample for discrimination between the observations of different weights; and inasmuch as the observation equations are to be multiplied by $\sqrt{p}$, it will be convenient to make $\sqrt{p} = 2$ for the normal observation, that is, the observation of highest theoretical weight. This belongs to the case A_5 when we have

$$m = 25, \qquad r_1 = \pm 0.^{s}030;$$

and case B_5 is identical with case A_5 if we have

$$m_1 = 25, \qquad l = 1.$$

Introducing the constant required, we have for the general expression of the weight factor to be employed in the solution of the observation equations

$$\sqrt{p} = 0.0294\ \sqrt{p'}.$$

It is evident that with given values of m, or of m_1 and l, there will be a separate value for the weight factor in each case for each adopted value of r_1; but it was deemed sufficient to compute the values of $\sqrt{p}$ for two values only of r_1—for very good and very poor star images — and interpolate the intermediate values by inspection. For the present work three groups of numerical values were computed and represented graphically in three diagrams, which are presented along with the tables at the close of this publication. The values required were obtained from these diagrams by inspection as explained in the section following entitled Explanation of Tables and Plates.

It may be remarked here that, if the value of the weight-factor be given for certain conditions in case B_5, the value for the same conditions in case B_1 is readily obtained from the relation

$$\sqrt{p} \text{ of case } B_1 = \frac{r_1}{\sqrt{r_1^2 + r_f^2}} \times \sqrt{p} \text{ of case } B_5;$$

which with the adopted values of r_1 and r_f becomes

$$\sqrt{p} \text{ of case } B_1 = \left.\begin{matrix} 0.652 \\ 0.424 \end{matrix}\right\} \times \sqrt{p} \text{ of case } B_5; \text{ Images } \begin{cases} 0.-0.5, \\ 4.5-5. \end{cases}$$

No observations were taken into the solutions where the number of differences of transit times between the parallax star and either of the comparison stars was less than three.

The values derived from the diagrams for the square roots of the weights were applied uniformly throughout the solutions, except that occasionally diminished weight was applied to an observation on account of especially unfavorable conditions mentioned in the notes accompanying the data for each star in Table VII.

The ultimate justification of any particular system of weights consists in their ful-

filling the requirement that, when the observation equations have been multiplied by the square roots of the weights—in order to combine them in a solution by the method of least squares,—the absolute terms of the equations shall have a common probable error, so far as errors which are presumably accidental are concerned; or, in other words, the mean residuals of the equations computed from the individual residuals after these have been multiplied by the square roots of their respective weights, should have a common magnitude for different mean values of the weights.

To apply this test in the present instance, ten stars have been selected which, upon inspection of the entire body of observations, appeared to present the greatest variety in the weights. The mean values of $\frac{1}{2}\sqrt{p}\,v$ taken from Table VII, with the corresponding mean values of $\sqrt{p}$, are given in the following table; but the former have been multiplied by cos δ in order to make the results from the different stars closely comparable as regards position in declination. All of the residuals corresponding to certain limits in the value of $\sqrt{p}$ were selected from the observations on each star. The unit in the third and seventh columns is one-thousandth of a second of time.

No. of Star.	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}\,v\cos\delta$	No. of Obs.	No. of Star.	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}\,v\cos\delta$	No. of Obs.
	0.75	15.5	12		1.11	23.5	14
33	1.35	25.5	11	124	1.65	26.5	13
	1.65	23.5	11		1.89	22.2	13
	1.01	17.9	13		0.84	27.8	11
40	1.55	18.5	13	159	1.49	27.6	15
	1.86	15.3	13		1.93	27.7	10
	1.03	32.6	15		0.92	19.7	17
65	1.67	24.8	15	204	1.48	21.2	18
	1.97	22.5	15		1.86	21.7	18
	0.93	18.6	13		0.99	39.3	19
74	1.58	32.0	13	242	1.63	40.5	19
	1.88	31.8	13		1.95	29.0	19
	0.93	19.1	17		1.14	17.7	18
89	1.41	20.2	18	254	1.67	20.8	19
	1.86	23.9	17		1.97	22.7	19

While individual stars show large discrepancies, as might have been expected, six of these stars, a majority of those selected, show a tolerably close agreement of the reduced residuals through all three grades of weight.

Combining the numbers given for the ten stars, the following mean results appear:—

$\sqrt{p}$	$\frac{1}{2}\sqrt{p}\, v \cos\delta$	No. of Obs.
0.96	23.2	149
1.55	25.8	154
1.88	24.0	148

It may be remarked that while the third mean value of $\sqrt{p}$ here is nearly twice the first value, the corresponding values of the reduced residuals are sensibly equal, thus showing that the weights employed actually fitted the observations on the whole.

DISCLOSURE OF SYSTEMATIC ERRORS AFFECTING THE PARALLAXES.

The reductions were supposed to be completed practically at the time some results and comparisons were presented at the Second Astronomical Conference in 1898; but certain peculiar results had already been noticed, and further investigation revealed a sensible systematic error existing in the values of parallax through several hours of right ascension preceding and following 0^h.

In Table IX in the column π are given the values of the parallaxes which resulted directly from the solutions. These show a number of abnormal cases, one of the most striking being that of star 288, 85 Pegasi. Solutions for this star with stars 287 and 289 separately, gave parallaxes of $-0''.26 \pm 0''.039$ and $+0''.01 \pm 0''.037$ respectively; but a peculiar circumstance in this case is the large difference of magnitude 1.9 between stars 287 and 288. Professor BARNARD of the Yerkes Observatory kindly took an interest in these results and undertook to observe star 287 with an independent and far fainter comparison star such as he could command with the great equatorial of that observatory. The following is the report of his observations.

THE 8.1 MAG. STAR B. D. +26°,4721. 1894.0. R. A., $23^h\ 53^m\ 56^s$; DECL. +26° 41′. AND 15TH MAG. STAR PRECEDING.

1897. Nov. 16. Pos. Ang. 263° 57′; distance 24″.09. Faint and difficult.

Measures for $\Delta\alpha$.

1897, Nov. 22	23″.65	1898, July 7	23″.38
23	23 .48	11	23 .23
Dec. 25	23 .05	12	23 .30
1898, Jan. 1	23 .12	18	23 .37
Mean	23 .32	Mean	23 .32

NOTE—The small star was difficult most of the time from poor seeing. Measured with the 40 inch equatorial and magnifying power of about 500 diameters—E. E. B.

There is no indication of parallax in these results from Professor BARNARD. But a systematic personal error depending upon difference of magnitude and season of the year was found to exist in the parallax results from the present series of observations with the meridian circle, as will be shown later; and the case of star 288 was one of its most marked illustrations.

INDEPENDENT OBSERVATIONS WITH THE SCREENS FOR CONTROL OF THE PERSONAL EQUATION.

Observations of miscellaneous stars with the screens, as a control upon the personal equation, were begun July 13, 1894, and maintained until the parallax observations were finished. These observations were introduced as opportunity offered without interfering with the parallax stars, and were made as follows:—

Each star was observed on three groups of transit threads arranged in the order of the passage of a star across the field of the telescope, of which the first and third groups contained five threads each while the second or middle group contained eleven threads. On one night a certain star was observed on the first and third groups of threads with the screen in front of the objective, and on the middle group with the screen out of the way. On a succeeding night this order was reversed, so that the observation with the screen came on the middle group of threads instead of on the first and third groups. The observations on a given star were kept up, with this reversal of the order of observation, so long as the star could be observed conveniently in the course of the parallax observations. These miscellaneous observations with the screens were reduced as follows:—

Let

T_1 = the mean of the times on the extreme groups of threads,

T_2 = the mean of the times on the middle group of threads,

i_1, i_2 = the assumed reduction to middle thread for the mean of the extreme groups and for the middle group respectively,

di_1, di_2 = the corrections given by the observations to i_1, i_2 respectively,

dp = the personal correction to the transit of a star due to the reduction of apparent magnitude by the screen.

Then for an observation where the screen is employed on the extreme groups of threads, we have

$$(T_2-T_1) + (i_2-i_1) + (di_2-di_1) - dp = 0;$$

and where the screen is employed on the middle group of threads,

$$(T_2-T_1) + (i_2-i_1) + (di_2-di_1) + dp = 0.$$

Combining the first two parentheses under the symbol dt_0 in the first equation and under dt_i in the second, and putting

$$di = di_1 - di_2,$$

we have

$$dp = \tfrac{1}{2}(dt_0 - dt_i),$$
$$di = \tfrac{1}{2}(dt_0 + dt_i).$$

The values of dt_0 and dt_i from the individual stars were multiplied by cos δ before combining them into mean values for the determination of dp and di. By these equations the difference in the personal equation due to the apparent change in the magnitude of the stars was determined; and any error in the assumed thread intervals was eliminated from the results, or determined if desired.

The first application of this work was to test the constancy of the personal equation by means of the observations made with screen I, which reduced the brightness of stars by 2.5 magnitudes. Observations were excluded where the star was noted as extremely faint and also where the quality of the star images was worse than 2 on a scale estimated from 0 for the worst to 5 for the best state of the images. The results for the three periods into which the parallax observations naturally divide themselves, are presented in the following table, where dp is the personal correction to the transit of an equatorial star due to a diminution of its apparent brightness by 2.5 magnitudes.

SCREEN I.

Period	dp	No. of Obs.
July, 1894–October, 1894.	$-0^s.024 \pm 0^s.0013$	281
November, 1894–August, 1895.	-0.026 ± 0.0010	507
September, 1895–August, 1896.	-0.028 ± 0.0008	811
	Total	1599

It appears from this table that the personal correction was constant on the whole, or progressing slightly with the time. At this place some further general mean values may be introduced, as follows:—

Screen I.	Stars extremely faint excluded, images 0 to 1.5 inclusive; 125 observations:	$dp = -0^{s}.030 \pm 0^{s}.0030$
Screen I.	Stars all extremely faint; 83 observations:	$dp = -0.076 \pm 0.0037$
Screen II.	Stars extremely faint excluded, images 2 to 5 inclusive; 326 observations:	$dp = -0.033 \pm 0.0008$
Screen II.	Stars all extremely faint; 28 observations:	$dp = -0.064 \pm 0.0050$
Screen III.	Excluding three observations where stars were extremely faint; 43 observations:	$dp = -0.012 \pm 0.0048$

From these values of dp compared also with those of the preceding table for screen I, it appears that there was a marked increase in the personal correction for observations of stars approaching the limit of visibility; and that the correction depended upon the absolute apparent magnitude of the star as viewed through the screen rather than upon the extent by which the brightness had been reduced by the interposition of a screen. Indeed, in the case of screen III, where the reduction was nearly eight magnitudes, there was either a compensating effect due to the brilliant and large disk, or the star of reduced magnitude was still not faint enough to produce the correction found from the observations with screens I and II. The former supposition is unlikely to be true, so far as size of disk is concerned, since the observations with screen I on very poor images do not show a marked change from those on the better images. Moreover, in all except 4 of the 43 observations with screen III the reduced magnitudes were between 6.6 and 7.8, or still considerably brighter than the average reduced magnitude in the observations with screen I.

But many of the miscellaneous stars observed with screen I were bright stars, employed conveniently because from them the clock corrections were to be determined for the observatory time service, and so too bright for comparison with the stars of the parallax sets. In order to ascertain more fairly the evidence contained in the screen observations as to change in the personal equation, all observations with screen I or screen II in which the reduced magnitude was 7.5 or fainter and the quality of the images not very poor, that is, not below 2.0 on a scale of 5, were arranged according to the season of the year only and the means formed for groups of three months each. Only eight observations for which the stars, as seen through the screen, were noted as too faint for satisfactory observation, fell within this class. The results are presented in the following two tables, where

dp_1 = the value of dp derived from the evening observations,

dp_2 = the value of dp derived from the morning observations,

n_i, n_o = the number of observations for which the screen was placed before the objective on the middle group of threads and on the extreme groups respectively.

The values of di are also given for comparison amongst themselves.

Season.	dp_1	n_i	n_o	di	dp_2	n_i	n_o	di	$dp_1 - dp_2$
				Screen I.					
Dec.–Feb.	$-0^s.040$	42	55	$-0^s.014$	$-0^s.046$	18	19	$-0^s.016$	$+0^s.006$
Mar.–May	− .038	48	43	− .008	− .052	55	44	− .014	+ .014
June–Aug.	− .046	51	52	− .010	− .058	49	57	− .010	+ .012
Sept.–Nov.	− .044	33	35	− .002	− .046	41	37	− .008	+ .002
Mean or Sum.	−0.042	174	185	−0.008	− 0.050	163	157	−0.012	+0.008
				Screen II.					
Dec.–Feb.	−0.055	10	10	−0.003	−0.060	8	7	−0.014	+0.005
Mar.–May	− .050	13	11	− .018	− .041	10	15	− .013	− .009
June–Aug.	− .036	23	30	− .012	− .064	15	17	− .006	+ .028
Sept.–Nov.	− .041	24	19	− .015	− .040	2	2	− .020	− .001
Mean or Sum.	−0.046	70	70	−0.012	−0.054	35	41	−0.012	+0.007

A representative value for the probable error of a single difference dt_o or dt_i was found to be $\pm 0^s.020$, reduced to a great circle. For any value of dp in the tables the probable error then will be very nearly the following:—

$$r = \pm \tfrac{1}{2} \sqrt{\left\{ \frac{n_i + n_o}{n_i \; n_o} \right\}} 0^s.020.$$

Thus in the first line of the former of the two tables the values of dp with their probable errors are

$$dp_1 = -0^s.040 \pm 0^s.0021; \qquad dp_2 = -0^s.046 \pm 0^s.0033;$$

and

$$dp_1 - dp_2 = +0^s.006 \pm 0^s.0039.$$

While the results in the second table agree on the whole with those in the first, the observations with screen I are more fairly representative of the conditions prevailing in the parallax observations themselves, as regards apparent magnitudes; and the results in the first table just given show a persistent difference between the

evening and the morning observing. This is in the sense by which a bright star relatively to a faint star would appear to cross the threads in the evening later than in the morning, and so would tend to come out with a negative parallax; which agrees with the result actually found in the case of 85 Pegasi, for example.

These results also indicate a seasonal change in the sense which would account for a systematic error in the parallaxes such as was found to exist actually in a certain portion of the twenty-four hours of right ascension; but the change is far short of the magnitude required to account for that error. Recourse was had, therefore, to the observations of the parallax and comparison stars themselves to explain this systematic error.

INVESTIGATION OF THE SYSTEMATIC ERROR BY MEANS OF THE OBSERVATIONS OF THE COMPARISON STARS.

All of the parallax sets in which the comparison stars differed from each other in magnitude by 1.0 or more, were selected for the investigation of systematic error. The equations of these parallax stars with one or both of the comparison stars were solved; so that the separate values of the parallax might be inspected, and the apparent parallax of one comparison star with reference to the other might be derived by a simple subtraction. This relative parallax was assumed to be zero. A few stars were included where the difference of magnitude was a little less than 1.0, in order to preserve a better balance between positive and negative differences of magnitude. The list included twenty-seven stars, the results for which are presented in Table VIII at the close of this publication.

If we refer to the three stars of a parallax set as stars 1, 2, and 3 respectively in the order of right ascension and put

$$\pi_1 = \text{the parallax of star 2 relative to star 1,}$$
$$\pi_2 = \text{the parallax of star 2 relative to star 3;}$$

we have evidently

$$\pi_2 - \pi_1 = \text{the parallax of star 1 relative to star 3.}$$

We may obtain the values of π_1 and π_2 by solution of the equations based upon the differences between the observed times of stars 1 and 2 and of stars 2 and 3; or, having obtained either value, as π_1, by such a solution, we may obtain the other evidently by the equation

$$\pi_2 = 2\,\pi - \pi_1,$$

where π denotes the parallax of star 2 referred to both stars 1 and 3. But this is rigorously true only when the dates of observation are the same in number and

identical on both comparison stars. This condition was observed in deriving the data of Table VIII. In some cases solutions for both π_1 and π_2 were made; and in all cases the solution with the other comparison star was carried so far as to form the absolute terms, which were employed as a control upon those formed for the first comparison star. This control consisted in adding together the absolute terms of the partial solutions, date by date, and comparing with those of the complete solution.

If we put

$$\Delta m = \text{Mag. of star 1} - \text{Mag. of star 3},$$

$$h = \frac{\pi_2 - \pi_1}{\Delta m},$$

the values of h will indicate by their algebraic signs whether systematic error is present dependent upon difference in brightness of the stars; and the numerical magnitude of h will be reduced nominally to the value $\Delta m = 1$. The computed values of h were plotted, in which process the sign of h was changed where Δm was negative, and a smooth curve was drawn amongst them, as shown in Plate IV. It will be seen that, while the curve does not depart materially from the zero line through most of its course, there is a marked rise at about 20h. of right ascension which is maintained until about 6h. The curve is represented almost exactly, from 23h. to 15h. of right ascension, by the equation

$$y = +0''.067 + 0''.101 \cos \alpha ;$$

in which the probable errors of the constants are $\pm 0''.011$ and $\pm 0''.016$ respectively. The probable error of a single residual is $\pm 0''.058$, assuming three unknowns to be involved. From 15h. to 23h. the computed curve runs about $0''.05$ above the plotted curve. The question may arise whether the apparent reversal of motion of stars observed north of the zenith as compared with those south, may not introduce an error of its own. This is undoubtedly the case as regards the determination of right ascensions of brighter stars north and south of the zenith, but would not necessarily be so in the present comparison between differences of right ascension simply observed at different epochs. Nine of the twenty-seven stars of Table VIII are north of the zenith and the average distance of their plotted points from the curve, having regard to signs, is $+0''.010$; which indicates that there is no sensible outstanding error peculiar to them.

The ordinate of the curve, therefore, at any given right ascension, was adopted as representing the fictitious parallax of a fainter star referred to a star one magnitude brighter. If we put

$$\tfrac{1}{2} Dm = \tfrac{1}{2} (\text{Mag. of star 1} + \text{Mag. of star 3}) - \text{Mag. of star 2},$$

we may adopt

$$e = \tfrac{1}{2} Dm.y$$

as the resulting correction to any of the observed parallaxes of Table IX; and the values π' are there obtained by applying the corrections in the column e to the corresponding values of π.

These corrections may be tested by arranging the values of π and π' with reference to the values of $\frac{1}{2}Dm$. This was done as shown in the following table where only mean values are presented. Star 252 was omitted as inadequately observed, so that there are 95 parallaxes represented in the table.

$\frac{1}{2}Dm$	π	v	π'	v'	No. of Stars.	$\frac{1}{2}Dm$	π	v	π'	v'	No. of Stars.
	″	″	″	″			″	″	″	″	
+1.7	+0.04	+0.05	+0.19	−0.08	10	−0.2	+0.12	−0.03	+0.11	−0.01	10
+1.3	+ .04	+ .05	+ .11	− .01	10	−0.4	+ .13	− .04	+ .11	.00	10
+0.9	+ .04	+ .05	+ .10	+ .01	10	−0.7	+ .13	− .05	+ .08	+ .02	10
+0.4	+ .02	+ .06	+ .04	+ .06	10	−1.4	+ .21	− .12	+ .16	− .05	15
+0.1	+ .05	+ .04	+ .05	+ .06	10						
	General Mean.						+0.087		+0.106		

It is seen that the values of π show a somewhat steady progression while those of π' show no marked variation with $\frac{1}{2}Dm$. These features are well brought out by the residuals v and v' which are the differences between the successive values of π and π' of the table and their respective general means.

If only those stars be taken which lie within the limits of right ascension between which the personal error has its most marked effect, according to the curve, that is from 19h. to 8h., the results are as follows:—

$\frac{1}{2}Dm$	π	v	π'	v'	No. of Stars.
	″	″	″	″	
+1.6	+0.01	+0.06	+0.22	−0.12	10
+0.9	.00	+ .08	+ .10	.00	10
+0.1	+ .04	+ .02	+ .06	+ .04	10
−0.6	+ .07	+ .01	.00	+ .10	10
−1.4	+ .25	− .19	+ .11	− .01	7
Gen.Mean	+0.074		+0.098		

Again, if the twenty-seven stars of Table VIII be excluded, the values of π and π'

will be entirely independent of the data employed in determining the corrections e and the results are as shown in the following table:—

$\frac{1}{2}Dm$	π	v	π'	v'	No. of Stars.
	″	″	″	″	
+1.7	+0.02	+0.08	+0.16	−0.05	10
+1.2	+ .07	+ .03	+ .12	.00	10
+0.6	+ .05	+ .05	+ .08	+ .03	10
0.0	+ .08	+ .02	+ .08	+ .04	10
−0.4	+ .16	− .06	+ .13	− .02	10
−0.9	+ .08	+ .02	+ .03	+ .09	10
−1.5	+ .24	− .14	+ .20	− .09	8
Gen.Mean	+0.100		+0.114		

The values of π and π' given in these tables are affected in some groups, of course, by peculiar values for certain individual stars; but all of these tables indicate plainly the presence of the same systematic error in π, corrected in π'.

In order to show whether there is a sensible systematic error outstanding which varies with the right ascension, the values of the corrected parallaxes, π', were arranged in groups in the order of right ascension. The results are presented in the following table and are seen not to indicate such error.

Limits of R. A.	π'	v'	No. of Stars.	Limits of R. A.	π'	v'	No. of Stars.
h *h*	″	″		*h* *h*	″	″	
23.1− 1.0	+0.20	−0.09	10	11.8−14.7	+0.13	−0.02	10
1.3− 4.2	+ .11	.00	10	14.8−16.7	+ .06	+ .05	10
4.5− 6.9	+ .10	+ .01	10	16.8−18.6	+ .15	− .03	10
7.4− 8.9	+ .05	+ .07	10	18.7−22.4	+ .04	+ .07	15
9.1−11.5	+ .18	− .07	10	Gen. Mean.	+0.113		

COMPARISON OF RESULTS FOR SYSTEMATIC ERROR AS DETERMINED BY THE PARALLAX OBSERVATIONS AND BY THE INDEPENDENT OBSERVATIONS WITH THE SCREENS.

The corrections for systematic error in the parallaxes having been derived as just described, it was sought to confirm them, if possible, by means of the independent observations with the screens. Accordingly the values of dp given in the table of results for screen I at page 23, were interpolated for the actual epochs of observation, evening and morning, for the twenty-seven stars of Table VIII. Their effect upon the apparent parallax of the preceding star of a pair is ascertained as follows:—

Let

T_1, T_2 = the true times of transit over the mean meridian for a pair of stars observed in the evening, of which the preceding star, at T_1, is the fainter.

T_1' = the time of transit of the preceding star as affected by the personal error in the evening;

t_1, t_2, t_1' = the corresponding times for the same pair of stars observed in the morning;

dP, dp = the relative personal corrections to the fainter star for the evening and the morning observations respectively;

$\Delta_1\pi$ = the resulting apparent parallax for the preceding star.

Then we have

$$T_1'-T_2 = T_1-dP-T_2, \qquad t_1'-t_2 = t_1-dp-t_2 ;$$

and

$$\Delta_1\pi = \tfrac{1}{2}\left\{(t_1'-t_2)-(T_1'-T_2)\right\} = \tfrac{1}{2}(dP-dp) .$$

This quantity is entered in the next column to the last for each of the stars in Table VIII and the difference $y-\Delta_1\pi$ in the last column, that is, the difference between the apparent parallax of a comparison star referred to another and brighter comparison star and the apparent parallax of the former star derived alone from observations on miscellaneous stars with screen I. It is seen that $\Delta_1\pi$ increases and diminishes algebraically along with y throughout the list; but while $\Delta_1\pi$ corresponds to a change of 2.5 in apparent magnitude and y to a change of only 1.0 nominally, the latter has twice the range in value. The case of star 288, 85 Pegasi, may be taken as an example. Here the magnitude of the three stars of the set are 7.9, 6.0, and 6.2 respectively; and the independent observations with the screen would account, at the most, for an apparent parallax of $-\frac{1}{2}\Delta_1\pi = -0''.06$ in star 288, while the observations of the comparison stars of Table VIII would account for a parallax of $-\frac{1}{2}Dm.y = -0''.17$. The application of the latter with reversed sign as the correction e, reduces the observed parallax, as given in Table IX, from $-0''.13$ to $+0''.04$; the latter of which values is the more reasonable one.

The stars from which the values of $\Delta_1\pi$ were derived were all reduced to magnitude 7.5 or fainter; but, as viewed through the screen, they were noted as too faint for satisfactory observation in only 8 out of the 679 observations. This is a much smaller proportion than in the observations of the parallax sets on the whole and seems sufficient evidence that the stars observed independently with the screens, were still too bright to reproduce the conditions determining the magnitude of the personal error for the former.

It may be added here that the results given in Table VIII also indicate the tendency for the personal error to be magnified in the fainter magnitudes. Excluding star 139 as having peculiarly bright comparison stars, the remaining stars have the following values of $\pi_2-\pi_1$, where the sign is reversed in cases where Δm is negative.

Mag. of Fainter Star.	$\pi_2-\pi_1$	Number of Stars.
8.7 to 8.0	+0.10	9
7.9 to 7.8	+0.15	9
7.7 to 6.8	−0.02	8

It is seen that the mean value of the apparent parallax is decidedly larger where the fainter stars are involved.

THE CAPACITY OF THE METHOD AS INDICATED BY THE PROBABLE ERRORS.

In the last column of Table IX is given for each parallax star the probable error of a determination of the position of the parallax star with reference to the mean of the positions of the two comparison stars from a single normal observation, that is, where all three stars were observed on 25 threads in common and the condition of the images was the best. These values are reduced to a great circle and expressed in seconds of arc. In the following table mean values of these probable errors are presented for the stars as grouped in order of declination, with the exclusion of 13 stars for which one or more members of the parallax set were noted as too faint for satisfactory observation.

Limits of Declination.	Mean Value of r_1.	Greatest and Least Values of r_1.		Number of Parallax Stars.
	″	″	″	
−30° to −10°	±0.15	±0.20	±0.11	16
− 9 to +10	.17	.22	.14	16
+11 to +50	.14	.18	.10	38
+51 to +74	± .12	± .15	± .10	13

In order to test the capacity of the method as applied in the present series of observations and as a means of determining stellar parallaxes, so far as consistency of results on a given parallax star is concerned, all those stars were selected which were observed through five or six epochs and on fifty or more nights in all and for which no member of the parallax set were noted as too faint for satisfactory observation. The probable errors r_π of the values of parallax for these stars were written out and their means taken, with the following results:—

Limits of Declination.	Mean Value of r_π.	Greatest and Least Values of r_π.		Number of Parallax Stars.
	″	″	″	
−30° to +10°	±0.035	±0.041	±0.029	7
+11 to +74	±0.028	±0.035	±0.021	14

There appears no marked superiority here of one group over another, except that which naturally pertains to stars of high declination.

There was considerable variety in the magnitudes of the intervals between the stars both in right ascension and in declination, and in a few cases the accuracy of observation appeared to suffer in consequence of too short intervals in the former. In order to test whether the length of the time intervals between the stars of a parallax set had any influence in general upon the accuracy of observation, the values of the probable error of a single observation, r_1 from Table IX, were arranged in groups according to the shorter of the two time intervals between the parallax star and its comparison stars. Those parallax sets were omitted in which any star was 8.5 in magnitude or fainter. The mean values of r_1 for the several groups are presented in the following table,

Smaller Interval in Right Ascension.	Number of Values of r_1.	Mean Value of r_1.	No. of Stars North of Zenith.
^{m} — ^{m}		$''$	
1.0 — 1.9	24	±0.145	4
2.0 — 2.7	29	.154	5
2.8 — 3.4	24	.145	6
3.5 — 5.3	12	± .152	2

There appears here no marked superiority of one group over another.

The values of r_1 from the same stars were arranged also with reference to the larger of the two intervals in declination between the parallax star and its comparison stars; and the mean values of r_1 were computed for certain limits in the magnitude of the interval. The results were as follows:—

Larger Interval in Declination.	Number of Values of r_1.	Mean Value of r_1.	No. of Stars North of Zenith.
° — °		$''$	
0.0 — 0.8	24	±0.148	4
0.9 — 1.6	23	.157	4
1.65 — 2.5	21	.140	7
2.6 — 4.4	21	± .155	4

There is no marked difference here between the mean values of r_1, and it therefore appears that a greater motion of the telescope in setting from one star to another had no effect in general upon the accuracy of the observation.

The stars of higher declination were distributed fairly well among the different groups in each comparison, as appears from the numbers in the last column of each table.

COMPARISON OF RESULTS FOR PARALLAX WITH THOSE OBTAINED BY PREVIOUS OBSERVERS.

It is of interest to compare the values π and π' of Table IX with values of parallax found by other observers and presented in tabular form on the pages following that table. In this comparison those stars are excluded for which the present results fall into a class of decidedly inferior accuracy as indicated by the colons (:) printed in the column No. of Obs'ns in Table IX; and also those determinations by other

observers are omitted which have a probable error considerably over ±0″.05. The results are shown in the following table. In the first three columns are given the numbers of the stars in the present series and the present observed values of the parallax π and π'. In the fourth column, π_o are given the values from previous determinations. These are weighted means in cases where there are two or more observers for the same star; and the weights, which are assigned roughly, together with the symbols for the different observers or computers, are given in the last column. The meanings of the symbols are given in the explanation of Table IX. In the fifth and sixth columns are given the differences of π and π' from π_o as indicated by the headings.

COMPARISON OF RESULTS FOR PARALLAX WITH PREVIOUS DETERMINATIONS.

No. of Star.	π	π'	π_o	$\pi_o - \pi$	$\pi_o - \pi'$	Authority.
	″	″		″		
2	+0.17	+0.10	+0.15	−0.02	+0.05	Pr
5	+ .44	+ .31	+ .29	− .15	− .02	A
11	− .02	+ .34	+ .20	+ .22	− .14	⅛ (2 OΣ + 2 S + D-R + 4 P)
18	+ .12	+ .07	+ .20	+ .08	+ .13	1/10 (OΣ + S + 2 Pr + 2.J-R + 4 P)
50	+ .28	+ .16	+ .19	− .09	+ .03	⅛ (G + H)
54	−0.09	+0.02	+0.11	+0.20	+0.09	E
65	+ .06	+ .01	+ .08	+ .02	+ .07	E
74	+ .28	+ .35	+ .38	+ .10	+ .03	⅛ (2 G + E)
77	+ .17	+ .25	+ .21	+ .04	− .04	Jn
86	+ .32	+ .34	+ .32	.00	− .02	E
89	+0.05	−0.01	+0.02	−0.03	+0.03	P
112	+ .12	+ .10	+ .18	+ .06	+ .08	P
115	+ .10	+ .09	+ .08	− .02	− .01	⅛ (K + 2 P)
124	+ .13	+ .15	+ .19	+ .06	+ .04	⅐ (B + 2 K + 4 P)
127	+ .36	+ .36	+ .48	+ .12	+ .12	⅛ (2 W + K)
130	+0.34	+0.34	+0.23	−0.11	−0.11	⅛ (A + Kr + K)
133	+ .21	+ .21	+ .12	− .09	− .09	1/10 (Bb + W + 4 LdeB + 4 Bg)
136	+ .47	+ .47	+ .16	− .31	− .31	⅛ (Gm + 4 Bg + 4 Fr)
142	+ .02	+ .02	+ .12	+ .10	+ .10	⅛ (5 A + K)
151	+ .09	+ .08	+ .11	+ .02	+ .03	P

COMPARISON OF RESULTS FOR PARALLAX WITH PREVIOUS DETERMINATIONS.
(Continued.)

No. of Star.	π	π'	π_δ	$\pi_\circ - \pi$	$\pi_\circ - \pi'$	Authority.
	″	″		″		
162	+0.07	+0.07	+0.04	−0.03	−0.03	½ (Jn + 4 E)
174	− .05	− .04	+ .08	+ .13	+ .12	P
225	+ .19	+ .19	+ .20	+ .01	+ .01	¼ (2 Kr + Sr)
228	+ .10	+ .10	+ .12	+ .02	+ .02	⅓ (Weighted mean, seven observers + E)
231	+ .36	+ .32	+ .35	− .01	+ .03	L
237	+0.02	+0.01	+0.06	+0.04	+0.05	P
240	+ .17	+ .17	+ .25	+ .08	+ .08	Br
243	+ .31	+ .22	+ .23	− .08	+ .01	E
261	+ .21	+ .21	+ .37	+ .16	+ .16	Mean of photographic results for preceding star.
264	− .02	+ .02	+ .02	+ .04	.00	Lv
279	+0.09	+0.35	+0.14	+0.05	−0.21	⅛ (2 Br + Gn + 2 P)
288	−0.13	+0.04	+0.05	+0.18	+0.01	Br
32 stars.		General mean.		+0.024	+0.002	

If these differences be arranged with reference to the values of $\frac{1}{2}Dm$ in the present series of observations, that is, with reference to the difference found by subtracting the apparent magnitude of the parallax star from the mean of the magnitudes of the comparison stars, the results are as shown in the following table; where the grouping of the stars is such as to separate the mean values of $\frac{1}{2}Dm$ as much as practicable.

$\frac{1}{2}Dm$	$\pi_\circ - \pi$	$\pi_\circ - \pi'$	Number of Stars.
	″	″	
+1.1	+0.08	−0.02	12
−0.2	+ .05	+ .06	11
−1.1	− .08	− .03	9

It is seen that the values of $\pi_\circ - \pi$ evidence the systematic error discussed in the preceding, while those of $\pi_\circ - \pi'$, so far as they go, indicate that the error has been truly corrected in π'.

COMPARISON OF PARALLAXES AND PROPER MOTIONS.

As remarked at the beginning of this publication, the principal condition determining the selection of stars to be observed for parallax, was that of large proper motion. The mean values of π and π' derived from the individual values of Table IX and grouped in order of the proper motion of the stars, are given in the following table, where all the stars are included except star 252. It is seen that there is a marked increase, on the whole, from beginning to end in the series of observed parallaxes corresponding to the increasing series of values of the proper motion.

Number of Stars.	Average Prop. Mot.	Limits of Prop. Mot.	Mean Values.	
			π	π'
	″	″ ″	″	″
20	0.15	0.0–0.3	0.00	+0.05
20	0.7	0.4–1.0	+ .07	+ .06
21	1.25	1.1–1.3	+ .11	+ .14
20	1.6	1.3–2.2	+ .09	+ .10
13	3.6	2.2–7.0	+ .25	+ .23

EXPLANATION OF THE TABLES AND PLATES.

Table I. Instrumental Constants.

In this table are given the values of the level b, of the collimation c of the middle thread, and of Bessel's constant n as computed from the observations of circumpolar stars combined with those of one or more equatorial stars. These were determined through certain periods more frequently than was required for the parallax observations, since the clock corrections for the observatory time service were derived also at these times from these observations. Wherever an adjustment was made of the position of the instrument or the telescope was removed for cleaning and oiling the pivots and bearings, a line is drawn in the b and n columns under the values which were observed last preceding the disturbance. Not all of the values of b observed are given in the table, but care was taken to present all those whose determination next preceded or followed any real or suspected disturbance.

The values of b and n were examined for all cases of abrupt change of $0^s.2$ or greater. Naturally these would occur most readily when there was a sudden and large change in the temperature; and out of 29 instances where the change of temperature was 10° F. or more, it was found that in 21 instances the change in each of the constants was marked in amount and opposite in sign to that of the change in temperature. The table is followed by some notes relative to the more noticeable changes in the constants, and the corresponding reference numbers are found attached in the column of dates.

The values of c, for the entire period of the observations, were arranged in chronological order and divided into fifteen groups according to approximate constancy of value; and the mean value of each group was adopted for the corresponding interval. The values of n for the reductions were adopted by inspection from the series of observed values given in the table.

Table II. Adopted Clock Rates.

The time-piece employed was the Hohwü sidereal clock. The rates were determined from the regular observatory records, for which the clock corrections were observed at intervals of two or three days when the weather permitted. The hourly rates adopted for the several periods into which the entire period of observation was

divided, are given in the table. In the last column is given the greatest amount by which any individual value of the rate in a given group differed from the mean value adopted for the group.

Table III. Constants of the Parallax Coefficients.

From this table are found readily the values of log m and of M for the computation of the parallax factors, sin $(L-M)$ and $P'=\frac{m}{15}$ sec δ. The proper use of the table is indicated sufficiently by the headings, and a table of proportional parts is appended for the interpolation of M which should be given within two or three tenths of a degree. This interpolation and the addition of 180° to the M function of the table after 12h have been subtracted from α where the right ascension is greater than 12h., are the only supplementary computations required.

Table IV. List of Parallax and Comparison Stars Observed.

In this table is given the list of stars observed so arranged that the designation and data for each parallax star together with those for its comparison stars appear in one group. In the first column is given a series of reference numbers which are employed in the text or in other tables to designate the corresponding stars.

For the comparison stars no special effort has been made to ascertain the names or earliest catalogue designations, except in the case of Bradley stars; and it is a question whether it is not best in general to refer to stars by their designations in modern catalogues of investigation, like those of Auwers-Bradley and Newcomb, or by their *Bonner Durchmusterung* numbers, especially since these numbers are printed in the *Catalog der Astronomischen Gesellschaft* and other catalogues. In some cases of parallax stars which are well known also under other designations than those given in the table, such other designations are given in the notes following the table and distinguished by the reference numbers of the stars.

The magnitudes expressed in the *third* column are from the Harvard *Meridian Photometry* for all stars brighter than 7.0 with four exceptions. The remaining magnitudes, including those adopted for comparison stars in cases where estimates are lacking in the present series of observations, are from the *Bonner Durchmusterung* or such as common authorities assign to the stars.

In the *fourth* column is indicated the screen through which the brighter stars were observed, and the employment of the single, double, or triple thickness is indicated by the numerals I, II, and III respectively.

In the *fifth* column is given the magnitude of each star as estimated in the pres-

ent series of observations and as affected in certain cases, designated by the numerals in the fourth column, by the interposition of the screens. Each number in the fifth column is in general the mean of a number of estimates, as indicated in Table VII following the data of the observation equations for each star. In some cases the numbers in the column are enclosed in parentheses which indicate that present estimates are wanting and that the magnitudes given are those of the *Bonner Durchmusterung* or, for stars farther south, of the *Argentine General Catalogue.*

In the *sixth* column is given the entire proper motion in a great circle.

In the *seventh* and *eighth* columns are given the right ascensions and declinations for 1895.0. No attempt was made to obtain accurate catalogue places for the stars throughout the list. It was the differences of position between the stars of a given parallax set that was of particular importance; and after the right ascension of the parallax star had been adopted from some catalogue, that for each comparison star was determined by the difference of the times of transit. The declinations are given to different degrees of approximation just as they were employed in computing the reductions to middle thread and the constants for the precession terms. The requirement made was that the error in the absolute term of any observation equation should not exceed $0^s.005$ due to error in the adopted declination for any one star. For the large declinations the position of each star was computed separately from some accurate catalogue; and in these cases the declinations are given to seconds. In other cases the declinations were taken from the observing list and an approximate control furnished by the readings of the setting circle, in some cases estimated to tenths of a minute.

In the *ninth* and last column is given the proper motion in right ascension which was adopted for the reductions. These were obtained from the AUWERS-BRADLEY catalogue if possible, otherwise from the Cincinnati catalogue for 1900.

TABLE V. REDUCTION CONSTANTS FOR THE PARALLAX STARS.

The meanings of the symbols placed at the heads of the columns from the second to the sixth inclusive, are given in the section preceding entitled Methods of Reduction.

In the *second* to the *fifth* columns inclusive are given the differences of the precessional constants for each set of stars designated by the number of the parallax star.

In the *sixth* column is given log 2 P' instead of log P' because log 2 P' was actually employed in the solutions to obtain the value of π by dividing into the value of z. In several cases where the observations for only two stars were reduced, the value of log 2 P' is still printed in the table for the sake of uniformity; but an asterisk is attached to signify that log P' was employed in the solutions for those cases. To illustrate the signification of P' it may be remarked here that the effect of the

parallax π of Table IX upon the transit time of any one star at a given date, is defined by

$$\delta T = P' \sin (L-M)\, \pi .$$

In the *seventh* column is given the difference of magnitudes for each parallax set in the sense

$$\tfrac{1}{2} Dm = \tfrac{1}{2}(\text{Mag. of star 1} + \text{Mag. of star 3}) - \text{Mag. of star 2},$$

where the stars of any parallax set are designated as stars 1, 2, and 3 in the order of right ascension. This quantity $\frac{1}{2}Dm$ serves to determine directly the personal correction of Table IX through the relation

$$e = \tfrac{1}{2} Dm.y ,$$

where y is the corresponding ordinate from the curve of Plate IV.

In the last two columns are given the differences of right ascension and declination in a sense similar to that of $\frac{1}{2}Dm$. These are presented to show at a glance the extent to which each set of stars deviates from symmetry.

In the three cases where the reduction involves the differences between two stars only, Nos. 221^3, 288^1, and 288^3, the quantities $a_1 - a_2$, $b_1 - b_2$, $c_1 - c_2$, and $d_1 - d_2$, are given in the columns from the second to the fifth inclusive respectively, and Mag.$_1$ — Mag.$_2$, $\alpha_1 - \alpha_2$, and $\delta_1 - \delta_2$ in the seventh, eighth, and ninth columns respectively; where the suffixes 1 and 2 are attached to the symbols pertaining to the comparison star and the parallax star respectively.

Table VI. Coefficients for Proper Motion, Precession, and Nutation.

In this table are given for 20 day intervals the coefficients employed in reducing to 1895.0 for proper motion, precession, and nutation. For explanation of the symbols placed at the head, see the section entitled Methods of Reduction in the preceding.

Table VII. Data of the Observations for Parallax.

In this table are given the data for the individual observation equations for each parallax star. The individual stars are represented by a series of subdivisions of the table in the order of their right ascension, and at the head of each subdivision are given the reference numbers from Table IV for the stars comprising each parallax set.

All of the numbers in the columns marked by an asterisk * are in units of $0^s.001$.

In the first column are given the serial numbers of the observations the last of which, therefore, for any parallax set shows the total number of observations entering into the solution of that set.

In the second column is given the date for each observation including the tenth of a mean solar day.

In the column c_1 is given the equatorial reduction interval to the axis of collimation for the mean of the differences between the transits of the first and second stars on the individual threads. This consists of the interval to middle thread with the addition of the collimation constant derived from Table I. The local constant of diurnal aberration, $-0^s.015$, is also included in c_1.

In the column c_2 is given the corresponding quantity for the mean of the transits between the second and third stars.

The adopted thread intervals were those given in *Publications of the Washburn Observatory*, Vol. VIII, p. 8. In May, 1893, the intervals of all the threads except the extreme groups, A and G, were measured with the right ascension micrometer and a mean correction of $-0^s.0178$ found to the adopted intervals to middle thread. The intervals for all of the threads were redetermined from the transits of twelve different stars of declination from 60° to 70°, nearly all observed from March to July inclusive, 1896. The resulting mean of the corrections to the adopted intervals was $+0^s.0131$. If we put

i = the adopted interval to middle thread for any given thread,
i' = the redetermined vale of i,
$\Delta i = i' - i$,
$\Delta_0 = \frac{\Sigma i'}{m} - \frac{\Sigma i}{m} = \frac{1}{m} \Sigma \Delta i$,

where Σ is the ordinary sign of summation and m is the total number of threads, we may write

$$i' = i + \Delta i = (i + \Delta_0) + (\Delta i - \Delta_0).$$

The mean correction Δ_0 may be regarded as a correction to the collimation of the middle thread and so entering into all of the observations during the period for which the changed values of the intervals hold; while $\Delta i - \Delta_0$ will be left us the correction pertaining to the particular thread. The two values found for Δ_0 are evidently insignificant as regards such observations as the present. The largest outstanding values of the individual corrections are

$$\Delta i - \Delta_0 = +0^s.021, \qquad \Delta i - \Delta_0 = -0^s.038.$$

The largest four values of the factor to be multiplied into these corrections for any two stars of the observing list were

$$\Delta \sec \delta = +0.37, \ -0.25, \ +0.13, \ +0.12,$$

so that the corresponding corrections to the absolute term of an observation equation would be, at their greatest,

$$\begin{array}{llll} +0^s.008, & -0^s.005, & +0^s.003, & +0^s.003 \quad \text{for } \Delta i - \Delta_0 = +0^s.021; \\ -0.004, & +0.010, & -0.005, & -0.005 \quad \text{for } \Delta i - \Delta_0 = -0.038. \end{array}$$

For an observation on all of the threads we would have

$$\Sigma (\Delta i - \Delta_0) = 0,$$

and this relation will obtain with more or less approximation according to the number of threads on which any particular observation is made; so that the corrections given are evidently insignificant, especially as regards the solutions for the complete parallax sets, which all approximate to symmetry in the positions of the stars.

In the column DT is given the sum of the differences between the transit times of the parallax star and that of each of the comparison stars for each observation in the sense

$$DT = (T_2 - T_1) + (T_2' - T_3),$$

where T_1 and T_3 denote the means of the transit times for the first and third stars of a set respectively and T_2 and T_2' denote the corresponding means for the second or parallax star. In the normal observation each star was observed on the same series of 25 threads situated symmetrically to the middle, and in such case we have $T_2' = T_2$ and the constants c_1 and c_2 very small. The time intervals between some stars were so short, however, and some stars were so faint, especially when the images were very disturbed, that it was impossible to observe all of the stars on the complete set of threads. The chronograph record was written down for each star so far as differences could be taken between transit times on the parallax star and times observed on the same threads in the case of either of the comparison stars. Hence there were many observations in which some times of the parallax star enter into one series of differences but not into the other and many in which c_1 and c_2 are not only large but very different from each other. For the latter reason two means of observed times for the parallax star, T_2 and T_2', were distinguished, and the terms $\Delta_1 C.c_1$ and $\Delta_2 C.c_2$ were computed separately, as given in the following two columns of the table. No times observed on threads in common between any two stars were omitted except in a comparatively few cases, which are mentioned in the notes to the individual stars in the present table.

The means of the differences were controlled by comparison with the means of the corresponding observed times themselves. In the case of symmetrical observations no account was made in this operation in general of higher denomination than the units.

In the columns $\Delta_1 C.c_1$ and $\Delta_2 C.c_2$ are given the reductions to the axis of collimation corresponding to the constants c_1 and c_2 respectively.

In the column $D \tan \delta.n$ is given the reduction to normal position of the instrument corresponding to the values of Bessel's constant n found in Table I.

In the column headed Rate is given the reduction on account of the clock rate, the adopted values of which are found in Table II. The effect of the rate is insignificant in all cases where a parallax star is reduced with both a preceding and a following comparison star.

In the column "Precess. and Nutat." is given the reduction to the selected epoch, 1895.0. This was interpolated for the series of observations on each set of stars from a table computed for ten day intervals by aid of Tables V and VI and the corresponding formulae. For a large number of the stars a duplicate computation was made of the differences between the constants a, b, c, and d with addition and subtraction logarithms. All of the constants were reviewed carefully; and this was done with special reference to error of sign, in view of the fact that such an error might lead readily to a fictitious parallax, if it occurred in the terms containing the C and D coefficients.

In the column "Prop. Mot." is given the reduction to 1895.0 for the assumed proper motion in right ascension given in Table IV. In computing this reduction the coefficient τ was taken to three decimal places as given in Table VI.

In the first column of the right-hand page is repeated the serial number of each observation.

In the column $D\alpha$ 1895.0 is given the sum of all the quantities contained in the fifth to the last columns inclusive on the left-hand page. This sum, therefore, is the observed quantity brought to the epoch 1895.0, with all known corrections applied. In a few cases additional special corrections are included on account of the extreme faintness of the star images. Such corrections are mentioned in the notes.

In the column τ is given the coefficient of the unknown term in proper motion as it was employed in the solution of the observation equations.

In the column sin $(L—M)$ is given the corresponding coefficient for the parallax term.

In the column 10 n_1' is given the quantity formed by subtracting the corresponding value of $D\alpha$ 1895.0 from the assumed value given at the close of the table and multiplying by 10. The product of this quantity, 10 n_1', multiplied by the square root of the corresponding weight forms the absolute term, n, of the observation equation as it enters into the solution by the method of least squares.

In the column v_1' is given the residual of each observation equation. This was computed by substituting the resulting values of the unknowns in the equation as it stood before it was multiplied by 10 and the square root of the weight. This computation was begun with the values of $d.D\alpha$, $d.D\mu$, and π as written at the close of each solution.

In the column $\sqrt{p}$ is given the value of the square root of the weight. This was

determined graphically from the diagrams of Plates I, II, and III as set forth in the explanation of the plates following.

In the column $\frac{1}{2}\sqrt{p}.v_1'$ is given for each observation a weighted residual whose construction is obvious from the heading. It is evident that these residuals are reduced to a common probable error so far as the weights are just. Since the normal, or highest, value of $\sqrt{p}$ is 2.0, the observations are represented here theoretically by their actual outstanding corrections in thousandths of a second of time at the declination of the star.

In the column m_1, m_2 are given the numbers of differences of observed times which enter respectively into the means of the differences between the parallax star and the preceding comparison star, as one pair, and between the parallax star and the following comparison star, as the other pair.

In the column headed Images are given the observer's estimates of the condition of the star images. In the earlier observations there was recorded only one number for each observation, which stood for the observer's impression as a whole; but for the great majority of the observations two numbers were recorded, the first corresponding to the steadiness of the images and the second to their quality. In each case the scale is from 0 to 5 with distinction of half-points between. The quality of an image was recorded as 5 when the disk appeared sharp and round and the diffraction rings were visible for the most part. The steadiness and quality were recorded as 0 when they were the worst the observer had witnessed after several years of experience with this instrument. Not uncommonly the record 0 was made against stars which would have appeared good or fair, probably, except for a certain disturbance in the air which appeared to be local and which is described in the discussion of the weights of the observations.

In the last column are given the notes which were recorded at the time of observation. Each note is preceded by the number of the observation to which it belongs. Some of the notes are preceded by two or more numbers which signifies that the same note applies to all of the observations designated. The letter *f*, single or repeated, is employed sometimes to indicate roughly the degree of faintness of a star. Thus *f* indicates that the image was fainter than would be preferred for accurate observation and generally fainter than the catalogue magnitude had led the observer to expect; *ff* indicates so faint an image that any disturbance was likely to render its observation uncertain and to cause occasional loss of observation on some threads; while *fff* indicates that the image at its best was so faint as to render the observation uncertain and, in extreme cases, to cause the loss of observation on a large number of threads. The numerical limits of these grades may be set, in the observer's estimation, as follows: *f*, 8.0 to 8.3; *ff*, 8.3 to 8.8; *fff*, 8.8 and fainter. The faintest magnitude that would allow of observation with a low illumination of the field was regarded as 9.0.

Following the first division of the table for each star, that contained on the left-

hand page, are given first the mean values of the estimates which the observer made of the magnitudes of the stars in the course of the individual observations. These are followed by the normal equations.

Following the second division of the table for each star, that contained on the right-hand page, is given the assumed value of $D\alpha$ 1895.0 which was employed in computing the absolute terms $10n_1'$ of the observation equations. Following this are the values of the unknowns x, y, and z which resulted from the solution of the normal equations.

Next are given the corrections $d.D\alpha$ and $d.D\mu$ derived from the values of x and y respectively and the application of which will be understood by reference to the section entitled Methods of Reduction. These are followed by the value of the parallax π and its probable error resulting from the solution.

In the last group are given the weight, p_z, of the parallax unknown quantity z, the two sums, $[pnn.3]$ and $[pvv]$, whose agreement controls the entire solution, and the probable error r of a single observation equation of normal weight, $\sqrt{p}=2.0$, and not reduced to a great circle. The computation of the v's was begun with the values of $D\alpha$ 1895.0, so that all of the subsequent work of the solution was included in the control.

Some further notes are appended in the cases of certain stars, mostly presenting supplementary values of the unknowns which were derived in the course of investigations concerning systematic error. Some of these are values derived from the observation equations as they stand but divided into groups as indicated in the notes. Others were derived from the corresponding equations for two stars only; and here the probable error given, r_1, is that of a single observation of the difference of right ascension of two stars under normal conditions and reduced to the arc of a great circle, to correspond to the probable error r_1 given in Table IX for sets of three stars. The publication of the details of these solutions for pairs of stars did not seem required, but the columns c_1, c_2, $\Delta_1 C.c_1$, $\Delta_2 C.c_2$, r_1, sin $(L-M)$, $\sqrt{p}$, and m_1 and m_2 are the same as printed in the corresponding solutions for sets of three stars.

The entire table is followed by a few general notes.

DIAGRAMS FOR DETERMINING THE WEIGHT-FACTORS OF THE INDIVIDUAL OBSERVATIONS.

Plates I, II, and III.

In these plates are presented the diagrams from which the weight-factors for the observation equations were obtained by inspection. A common feature of all three is the double system of plotted lines the ordinates of which represent values of the weight factor, or a simple function thereof, corresponding to certain conditions. The

lower system, drawn in dotted lines, corresponds to a very poor condition of the star images, 0 to 0.5; while the upper system, drawn in full lines, corresponds to a very good quality of the star images, 4.5 to 5. In practice the two systems were more readily distinguished and the interpolation by inspection facilitated by drawing them in different colors. In all three plates each line is continued beyond its last plotted point at the right hand side of the diagram in order to carry a distinguishing mark; for example in Plate I, $m=3$, $m=5$, and so on. The eye is further assisted by printing small letters on the dotted lines and capital letters on the full lines.

In Plate II the lines for the values $m_1=3$ for good images and $m_1=10$ for poor images coincide in part. In Plate III, similarly, there are two instances of coincidence between two lines in part.

PLATE I, DIAGRAM A. This one diagram suffices for all observations of class A. In this class all three stars of a parallax set are observed on the same threads throughout, on a given date. The several cases among which the observations are divided, according to the brightness of the star images, are represented by five ordinate lines distinguished by the corresponding symbols A_1, A_2, A_3, A_4, and A_5. The distinction between the cases is presented in the section preceding entitled The System of Weights and is indicated also on the diagram. Each vertical space represents an interval of 0.2 in the value of the weight factor, which reaches a maximum in the value 2.0 corresponding to the normal observation, that in which all the stars are conveniently bright, the images very good, 4.5 to 5, and the number of threads the full complement, 25.

The values of the weight-factors corresponding to a very poor condition of the star images, 0 to 0.5, are laid off upon the ordinate lines for a series of values of m, the number of threads on which the stars were observed, namely, 3, 5, 10, 15, 20, and 25, and the points connected by straight dotted lines to guide the eye readily from one case to the next for a given value of m. The values of the weight-factors corresponding to a very good condition of the star images, 4.5 to 5, are represented by a second series of lines drawn full.

When the weight factor is required for a given value of m and a given condition of the star images, as to quality, the computer casts his eye up the ordinate line corresponding to the case in hand, fixes upon the proper point with reference to the lines drawn, and interpolates the corresponding number from the scale of ordinates written at the left side of the diagram. This number is the square root of the weight, $\sqrt{p}$, and is therefore the factor to multiply into the observation equation to prepare it for combination with others in the solution by the method of least squares.

PLATE II. DIAGRAM $B_{1,5}$. This serves for the two cases B_1 and B_5 of observations in class B. In this class one comparison star is observed on a less number of threads m_1 than the number m_2 on which the parallax star and the other comparison star are observed. In case B_1 the stars are all extremely faint; in case B_5 they are all bright.

The diagram itself applies directly only to case B_6 and is constructed and employed in the same manner as Diagram A, except that the ordinate lines here correspond to successive values of $l = \frac{m_1}{m_2}$. The plotted lines are therefore more in the nature of curves, though the values of l of course are not continuous.

When the weight-factor for an observation in case B_1 is desired, the corresponding value is obtained from the diagram and the requisite factor found from the relations

$$\sqrt{p} \text{ of case } B_1 = \left.\begin{matrix} 0.652 \\ 0.424 \end{matrix}\right\} \times \sqrt{p} \text{ of case } B_5; \text{ images } \begin{cases} 0-0.5, \\ 4.5-5. \end{cases}$$

PLATE III. DIAGRAM B_{2-4}. This serves for the remaining cases of class B as distinguished in the section entitled The System of Weights. The diagram is constructed with reference to the relation, which holds throughout class B,

$$\sqrt{p} = \sqrt{m_1}\,\sqrt{p''}.$$

The ordinate lines correspond to successive values of $l = \frac{m_1}{m_2}$, and each vertical space represents an interval of 0.1 in the value of $\sqrt{p''}$. Each case is represented by one dotted and one full line connecting the values of $\sqrt{p''}$ computed for that case, the former for very poor and the latter for very good conditions of the star images. The lines are distinguished readily by the corresponding symbols B_2, B_3, B_4', and B_4'' attached to them.

The value of $\sqrt{p''}$ is determined readily by inspection between the plotted lines, and the corresponding value of $\sqrt{p}$ is obtained by multiplying by a simple value of $\sqrt{m_1}$.

TABLE VIII. DATA CONCERNING THE SYSTEMATIC CORRECTIONS TO THE OBSERVED PARALLAXES.

The explanations required are as follows:—

In the first column are given the reference numbers of the twenty-seven parallax stars upon the observations of whose comparison stars the curve of the systematic correction is based.

In the column Δm is given the difference found by subtracting the magnitude of the following from that of the preceding star of a pair of comparison stars. The magnitudes employed are those of Table IV.

In the columns π_1 and π_2 are given the values of parallax for the parallax star resulting from the solution of the equations between the parallax star and its preceding and following comparison stars respectively. Only those equations were employed which belonged to dates on which all three stars were observed.

In the columns $r(\pi_1)$ and $r(\pi_2)$ are given the probable errors of the corresponding

values π_1 and π_2 respectively. These probable errors were computed from the sums [*pnn*.3] of the corresponding solutions. Wherever the value of $r(\pi_1)$ or $r(\pi_2)$ is given in the table, the preceding value of the parallax, π_1 or π_2, was obtained from a complete solution of the equations. In some cases both values of parallax for a given star were derived from such solutions, while in the remaining cases one value only was so derived and the other obtained from it by one or the other of the relations

$$\pi_2 = 2\pi - \pi_1, \qquad \pi_1 = 2\pi - \pi_2;$$

where π denotes the parallax resulting from the solution with both stars and given in Table IX.

In the column h are given the values of the quantity

$$h = \frac{\pi_2 - \pi_1}{\Delta m}.$$

In the column y are given the ordinates of the curve (Plate IV) drawn to represent the plotted values of h. Each value of y in the table is the ordinate of the curve at the right ascension of the corresponding star.

In the column v are given the residuals $v = y - h$.

In the column $\Delta_1\pi$ are given the corrections derived from the independent observations with the screens and corresponding to the values of y respectively. These values of $\Delta_1\pi$ are presented here simply for comparison with those of y.

In the last column are given the differences between y and $\Delta_1\pi$, showing an agreement in sign but revealing the inadequacy of the latter to account for the systematic corrections required by the parallaxes.

For a full discussion of the data of this table see the corresponding section in the Introduction preceding.

Plate IV. Curve of Personal Systematic Correction to Observed Parallaxes.

In this diagram is presented the plot of the values of h from Table VIII laid down as ordinates with the corresponding right ascensions as abscissae. Each plotted point represents the parallax of the preceding of a pair of comparison stars referred to the following star and divided by the difference between the magnitudes of the stars; but where that difference is negative, the sign of the quotient is reversed, in order to combine all the stars of Table VIII conveniently for the drawing of a single curve. Where the plotted point has a short stroke just beneath it, the difference of magnitude is negative, that is, the preceding star is the brighter, while in the remaining cases the preceding star is the fainter of the two.

A full account of the data upon which the curve rests is given in the explanation of Table VIII just preceding and in the Introduction, in connection with that table.

The ordinate y of the curve at any right ascension was adopted as the factor of the personal systematic correction to the observed parallax π of Tables VII and IX at that right ascension; that is —

$$e = \tfrac{1}{2} Dm.y,$$

where we have

$\frac{1}{2}Dm$ = the difference found by subtracting the numerical magnitude of the middle, or parallax, star from the mean of the magnitudes of the two comparison stars,

e = the correction required to the observed parallax of the middle star.

The values of e and the corrected parallaxes π' are given in Table IX.

Table IX. Observed Values of Parallax.

The explanations required are as follows:—

In the first column is given the reference number of each parallax star as given in Table IV.

In the third column is given the total number of observations on each star. Their distribution among the different periods of maximum and minimum of parallax may be seen in Table VII. In a few cases two parallax stars are so close to each other in right ascension that observation could be made on only one of them on a given date; which accounts for the smaller number of observations on such stars. For explanation of the colons (:) attached to certain of the numbers, see the explanation of column π following.

In the column $\frac{1}{2}\,d.D\mu$ is given the correction to the difference of the assumed proper motions. This is one-half of the corresponding value of Table VII, where the complete results of the solution are given, and therefore corresponds properly to the value of π; that is—

$$\tfrac{1}{2}\,d.D\mu = \mu_2 - \tfrac{1}{2}(\mu_1 + \mu_3);$$

where μ_1, μ_2, and μ_3 are the assumed proper motions in right ascension of the three stars of a parallax set respectively. In the three cases where the solution was made for two stars only, Nos. 221^2, 287^1, 287^2, the quantity given is

$$d.\Delta\mu = \mu_2 - \mu_1;$$

where μ_1 and μ_2 are the assumed proper motions for the comparison and the parallax stars respectively. The probable errors of the values of $\frac{1}{2}\,d.D\mu$ were not computed except in the three following instances which were taken at random as representative cases: star 5, $\pm 0^s.0032$; star 24, $\pm 0^s.0040$; star 80, $\pm 0^s.0055$. These values are not reduced to a great circle.

In the column π are given the values of the parallax as resulting directly from the solutions of Table VII, and in the next column, r_π, are given the corresponding probable errors. These were computed from $[pnn.3]$. These sums were compared sub-

sequently with the [pvv], which were employed as a general control upon the solutions. In the four cases where more than two comparison stars were observed with the same parallax star, two values of the parallax resulting from separate solutions are given in the table. These values are not entirely independent of each other, inasmuch as they have the observations on the parallax star and one comparison star, or on the former alone, in common. Adopted mean values are given in the notes for these cases. For the sake of completeness the results are published here for all of the stars observed; although in some cases, owing to the small number of observations or the extreme faintess of a star, the probable error is so large as to put the value given for the parallax out of consideration, at least as an individual determination. Accordingly those stars which have the probable error of the parallax, r_π, not only greater than $\pm 0''.055$ but also greater than one-half of the resulting parallax π itself, are marked by a colon (:) in the column "No. of Obs'ns". These stars are sixteen in number.

In the column e is given the personal correction which was derived from the curve presented in Plate IV based upon the data of Table VIII.

In the column π' is given the value of the parallax corrected for systematic personal error,

$$\pi' = \pi + e.$$

In the column r_1 is given the probable error of the position of the parallax star with reference to the mean of the positions of the two comparison stars in right ascension from a single normal observation and reduced to a great circle. In the three cases where only one comparison star enters into solution with a parallax star, the probable error given is that of a single observed position referred to one star only. These probable errors were computed from the same data as were employed in computing the probable errors, r_π, of the parallaxes.

Following Table IX are presented in double column the better determined values of parallax from previous observers of stars of the present list. First is given the reference number of the star from Table IV. Next are certain letters designating the observers or computers, as follows:—

A	=	Auwers,	Jn	=	Johnson,
B	=	Ball,	K	=	Kapteyn,
L de B	=	L. de Ball,	Kr	=	Krueger,
Bb	=	Berberich,	L	=	Lamp,
Bg	=	Bergstrand,	Lv	=	Leavenworth,
Br	=	Brünnow,	P	=	Br. Peter,
D-R	=	Davis-Rutherford,	Pr	=	Pritchard,
E	=	Elkin,	S	=	Schweizer,
Fr	=	Franz,	Sr	=	Schur,
G	=	Gill,	$O\Sigma$	=	O. Struve,
Gm	=	Geelmuyden,	W	=	Winnecke,
Gn	=	Gylden,	Wl	=	Wilsing,
H	=	Hall ,	W-B	=	Wagner-Belopolski.
J-R	=	Jacoby-Rutherford,			

Following the symbol for each observer is the corresponding value of the parallax with its probable error, and a letter designating the method of observation, in accordance with the following:—

H = with the heliometer;
M = with the filar micrometer attached to the equatorial telescope and—
M_1, from measures of distance and position angle combined,
M_2, from measures of distance alone,
M_3, from measures of position angle alone,
M_4, from differences of declination,
M_5, from differences of right ascension;
P = by measurement of photographs;
T = by differences of meridian transits employing special comparison stars.

An elaborate presentation of results from the work of different observers is not attempted here. With the probable marked increase in the number of good determinations of stellar parallax in the immediate future, the time seems hardly to have arrived for a comprehensive catalogue of parallaxes or a final investigation of their significance. The values presented here are taken mostly from Pritchard's catalogue in No. IV of the Oxford Observations—which appears to need some revision—together with such values as have appeared since in the leading journals or in the publications of the few observatories well known to have given special attention to this department of astronomy.

TABLES AND PLATES.

TABLE I. INSTRUMENTAL CONSTANTS.

Date.	b	c	n	Date.	b	c	n
1893				1894			
Oct. 16.3	$+0^{s}.58$	$-0^{s}.17$	$+1^{s}.27$	Jan. 18.2	$+0^{s}.28$	$-0^{s}.06$	$+0^{s}.58$
Nov. 13.7	+ .41	.00	+1.17	22.2	+ .39		+0.88
14.7	+ .26	.00	−0.08	24.6[6]			+1.50
20.3	+ .21			26.2	+ .34	− .06	+0.81
25.3	+ .10	+ .04	− .31	27.3	+ .41	+ .01	
29.3	+ .03	+ .01	− .59	27.7	+ .50		+ .94
Dec. 3.3	+ .04		− .64	31.7	+ .52	+ .03	+0.88
5.3[1]	− .12		− .93	Feb. 1.7	+ .60	+ .02	+1.06
10.3	+ .19	+ .02	+ .59	3.2	+ .08		
12.7[2]	+ .20		+ .99	4.6			+0.55
17.2	+ .22		+ .71	5.1	+ .04	+ .04	
18.1	+ .29	+ .04		5.3			+ .45
19.2	+ .32	− .02	+ .90	5.7	+ .02	+ .03	+ .37
20.2	+ .34		+ .82	7.6	+ .07	+ .08	+ .32
21.2[3]	+ .26	− .05	+ .54	15.3	+ .16		+ .75
30.2	+ .35	.00	+ .78	15.6	+ .28	− .03	+0.95
31.3	+ .37		+ .66	20.6	+ .24	+ .01	+1.06
1894				21.6	+ .13		+0.83
Jan. 1.7[4]	+ .19		+ .38	23.2	+ .14	− .05	
1.8	+ .21	− .03	+ .38	23.4			+ .80
6.3	+ .23	− .02	+ .57	25.4			+ .63
7.3[5]	+ .32		+ .87	25.7	+ .16	− .02	+ .72
7.7	+ .34	+ .03	+ .82	27.7	+ .14		+ .65
8.3	+ .30		+ .76	Mar. 1.4	+ .24		+ .66
10.2	+ .28		+ .56	1.7	+ .25	− .04	+ .72
12.6	+ .29	−0.04	+ .70	2.4	+ .26		+ .63
13.3	+0.33		+0.62	3.3	+0.25	−0.05	+0.41

TABLE I (Continued).

Date.	*b*	*c*	*n*	Date.	*b*	*c*	*n*
1894				1894			
Mar. 6.3	+0.26		+0.48	May 10.7	+0.07	+0.07	−0.13
11.3	+ .28		+ .29	11.7	+ .05		
11.9	+ .34	+0.03		12.4	− .01		− .11
12.3	+ .25		+ .27	12.7	− .08		− .38
12.7	+ .28	+ .01	+ .25	13.4	− .06	+ .05	− .34
13.3	+ .21		+ .19	16.4	− .14	− .02	− .47
13.7	+ .31	+ .03	+ .34	18.3[8]	+ .26		+ .28
15.3	+ .18		+ .16	18.7	+ .19	+ .04	+ .23
17.4[7]	− .13		− .40	25.3	− .08	+ .02	− .20
18.8	− .04	+ .03		26.3	− .09		− .32
28.6	− .21	+ .11	− .12	31.3	+ .04	+ .01	
29.3	− .21		− .15	31.7	+ .02		− .06
29.7	− .24		− .14	June 2.3	+ .15	− .05	+ .01
Apr. 1.3	− .17	+ .08	− .22	2.6	+ .10		− .07
5.3	− .08		− .07	3.3	− .01		− .25
5.7	− .11	+ .04		3.7	+ .10	+ .06	− .24
7.3	− .15	+ .06	− .10	6.7[9]	+ .17		+ .11
7.6	− .09		− .02	11.3	− .06	− .01	− .35
12.3	− .20		− .12	12.4	+ .01	− .03	− .26
12.7	− .23	+ .09		13.4	+ .37	− .04	+ .16
22.4	− .14		− .15	14.4	+ .42	− .06	+ .19
24.3	− .15		− .22	18.4	+ .56	− .04	+ .39
25.3	− .18	+ .04	− .26	22.4	+ .48	− .03	
26.3	− .19	+ .08	− .36	22.6	+ .44		+ .26
May 2.4	− .07	+ .01	− .22	24.3	+ .56	− .01	+ .35
3.3	− .07		− .19	26.4	+ .55	− .06	
3.7	− .05	+ .01		26.6	+ .50		+ .40
6.3	+ .02		−0.12	28.4	+ .64	− .01	
8.3	+ .26	+0.04		30.4	+ .58	− .05	+ .41
8.7	+0.17			July 1.3	+0.55	−0.09	+0.51

TABLE I (Continued).

Date.	*b*	*c*	*n*	Date.	*b*	*c*	*n*
1894				1894			
	s	s	s		s	s	s
July 2.4	+0.73			Aug.24.3	+0.53	−0.13	+0.84
3.4	+ .74	−0 5	+0.64	27.3	+ .64		+1.10
4.3	+ .78			31.3	+ .63	− .14	+1.09
6.4	+ .68			Sept. 5.4	+ .55	− .09	+0.89
8.4	+ .66	− .08	+ .73	10.4			+1.14
10.4	+ .60	− .09	+ .66	11.3	+ .58	− .10	+1.18
11.7	+ .63		+ .58	13.3			
13.3	+ .67	− .15	+ .86	15.4	+ .46		+0.85
14.7	+ .67		+ .92	17.3	+ .55	− .07	
15.7	+ .62	− .07		19.4	+ .47	− .07	+ .85
20.4	+ .72	− .10	+0.80	24.3	+ .48	− .03	+ .96
21.4	+ .71		+1.00	25.4	+ .42	− .06	
23.4	+ .51	− .15	+0.94	26.4	+ .38		+ .82
25.4	+ .56	− .08		27.7	+ .35		
26.4	+ .54	− .10	+ .81	28.4	+ .33	− .07	
27.4	+ .52	− .10	+ .69	30.7	+ .38		+ .79
27.7	+ .60		+ .68	Nov. 3.3	+ .17	− .12	+ .66
29.7	+ .66	− .10	+ .94	16.3	+ .12	− .04	+ .56
Aug. 1.4	+ .56	− .06	+0.81	17.2	+ .17	− .03	+ .61
1.7	+ .55			18.8*	+ .31	+ .04	
2.4	+ .72		+1.00	20.2	+ .15	− .05	+ .72
4.7	+ .63		+1.21	23.3	+ .09	− .06	+ .50
6.4	+ .59		+1.02	24.8	+ .15	− .04	
8.4	+ .73	− .10	+0.99	26.3	+ .22	− .03	+0.61
11.3	+ .56	− .12	+0.98	27.2	+ .12		
11.7	+ .58		+1.05	Dec. 2.3	+ .52	− .05	+1.25
16.4	+ .60	− .08		2.8	+ .55		+1.35
16.7	+ .58		+1.00	3.2	+ .59	+ .04	
18.4	+ .58		+0.90	3.8	+ .55		+1.17
21.7	+0.48	−0.12	+0.96	4.2	+0.52	0.00	+1.08

TABLE I (Continued).

Date.	*b*	*c*	*n*	Date.	*b*	*c*	*n*
1894				1895			
Dec. 5.2	+0.54 s	+0.02 s	s	Feb. 8.3	+0.39 s	0.00 s	+0.48 s
5.8	+ .49		+1.05	10.3	+ .56	+ .01	+ .59
6.2	+ .51	+ .01		13.8	+ .70	− .05	+ .66
7.2	+ .45	.00		15.7	+ .81	− .05	+ .84
13.2	+ .53	− .03	+0.97	18.3	+ .92		+ .84
18.3	+ .55	+ .01	+1.05	18.7	+ .92	+ .02	
25.3	+ .57	+ .01	+1.08	19.3	+0.97	+ .01	+ .88
29.3	+ .42	+ .01		21.3	+1.01		+ .89
31.4	+ .39	− .02	+1.08	21.7	+1.08	+ .07	
1895				23.3	+0.98	+ .01	
Jan. 2.3	+ .52	.00	+1.13	24.3	+0.89		+ .75
3.3	+ .52		+1.12	Mar. 1.3	+1.09	+ .02	+ .89
7.3	+ .77		+1.31	5.3	+0.94	− .05	+ .90
8.3	+ .90			8.3	+ .87	− .02	+ .76
8.8[10]	+ .97	+ .09	+1.55	10.5	+0.98	− .02	+ .88
10.3	+ .93		+1.28	10.8	+1.02		
12.3	+ .90	+ .08	+1.31	13.3	+0.78	− .02	+ .74
13.3	+ .78			16.8	+ .82	− .02	
15.3	+ .40	+ .01	+0.30	17.3	+ .85		+ .74
16.3	+ .44	+ .03	+ .29	20.3	+ .80	− .05	+ .73
16.7	+ .45		+ .38	21.7	+ .87		+ .73
19.4	+ .44	.00	+ .33	23.3	+ .71		
22.4	+ .32	+ .01	+ .42	24.4	+0.91	− .02	+ .61
26.3	+ .34	− .02	+ .33	26.3	+1.03		+ .69
27.3[11]	+ .39	.00	+ .59	27.3	+0.45	− .02	+ .19
27.8	+ .50		+ .57	27.7	+ .36		+ .09
29.3	+ .38	.00	+ .38	29.7	+ .25		− .10
30.3	+ .45		+ .51	30.3	+ .20	+ .01	− .07
Feb. 1.3	+ .59	.00	+ .59	Apr. 1.7	+ .06		
3.3	+0.50	−0.03	+0.56	3.3	0.00	0.00	−0.16

TABLE I (Continued).

Date.	b	c	n	Date.	b	c	n
1895				1895			
	^{s}	^{s}	^{s}		^{s}	^{s}	^{s}
Apr. 4.3	+0.02		−0.33	Aug. 6.7	−0.24	+0.10	−0.80
9.3	− .20	+0.07	− .52	9.3	− .29		−1.02
10.3	− .24	+ .07	− .44	9.7	− .32	+ .09	
12.7	− .21	+ .10	− .59	10.3	− .27		−0.93
15.7	− .34	+ .02	− .58	11.7	− .25		
22.7	− .34		− .67	12.3	− .11		
24.7	− .38	+ .02		12.7	− .17		− .68
26.7	− .40		− .71	13.3	− .26		
29.7	− .49	+ .06	− .95	17.4	− .11	+ .09	− .69
30.7	− .46			Sep. 25.7	− .30	+ .02	− .90
May 6.7	− .38	+ .08	−0.98	30.3	− .41		− .77
9.7	− .49		−1.05	Oct. 1.3	− .44	− .02	
13.7	− .31	+ .08		5.4	− .35	+ .01	
19.7	− .44	+ .06		9.3	− .42		− .81
26.7	− .34	+ .05	−0.79	12.3	− .41		−0.97
27.7	− .43		−0.85	16.3	− .42	+ .07	−1.02
28.7[12]	− .56		−1.20	21.3	− .45		−0.92
30.7	− .48	+ .07		21.7	− .62		−1.02
June 1.7	− .44		−1.19	22.3	− .62		
2.7	− .33			23.7	− .56		
5.7[18]	− .15	+ .06	−0.89	26.4	− .37	− .01	−1.06
13.7	− .17	+ .06	− .73	29.7	− .58		−0.82
22.7	− .18	+ .09	− .73	31.7	− .64		−0.92
26.7	− .16	+ .09	− .68	Nov. 1.3	− .60	+ .01	
July 4.7	− .22	+ .12		2.3	− .61		−1.10
12.7	− .10	+ .13	− .68	4.3	− .65		−1.36
21.7	− .18	+ .12	− .78	12.3	− .60	− .05	−1.12
29.4	− .25		− .85	20.3	− .50		−0.93
31.7	− .19	+ .12	−0.65	23.3	− .77	−0.04	−1.17
Aug. 1.7	−0.21	+0.09		Dec. 2.7	−0.68		

TABLE I (Continued).

Date.	*b*	*c*	*n*	Date.	*b*	*c*	*n*
1895				1896			
	s	s	s		s	s	s
Dec. 4.3	−0.87			Mar. 13.3	−0.62		−0.66
4.7	− .89	−0.02		17.4	− .52	−0.07	− .68
5.3	− .82		−1.29	22.7	− .44		− .75
7.4	− .77			23.3	− .45		− .68
8.3	− .66		−1.33	23.7	− .45		− .77
12.4	− .66	− .02		24.3	− .54		− .93
15.3	− .52		−1.28	26.4	− .49		−0.97
23.4	− .56	+ .01		29.7	− .53		−1.19
31.3	− .64		−1.10	30.3	− .62		−1.12
1896				30.7	− .64	− .04	
Jan. 6.3	− .42		−0.83	Apr. 3.3	− .65		−1.14
14.4	− .21	+ .07	−0.67	5.7	− .73	− .04	−1.07
29.3	− .38		−1.03	9.3	− .81		−1.30
Feb. 1.4	− .33	− .01	−1.08	13.7	− .88	− .02	−1.62
5.3	− .40			14.7	−0.90		−1.66
8.3	− .44		−1.02	15.3	−1.02		−1.80
11.3	− .42	− .01		20.7	−0.73		
15.3	− .36		−0.91	21.7	− .64	− .02	
16.7[14]	− .51		− .37	May 2.3	− .69	− .01	−1.59
19.7	− .15		− .35	4.7	− .72		−1.59
20.2	− .46		− .60	8.3	− .80		−1.82
20.8	− .32			25.4	− .71		−1.66
21.8[14]	− .32		− .53	26.7	− .62	− .09	
23.3	− .09	− .09	− .56	28.4	− .63	− .02	
24.7	− .56		− .71	30.7	− .73	− .06	
27.3	− .47	− .04	− .93	June 1.7	− .67	− .04	−1.52
Mar. 1.3	− .54		− .90	5.7	− .78		−1.75
8.3	− .60	0.00	− .92	10.4	− .58	− .08	
11.3	− .54		− .92	13.7	− .66		−1.54
12.7[15]	−0.57		−0.66	14.4	−0.64	0.00	

TABLE I (Continued).

Date.	*b*	*c*	*n*	Date.	*b*	*c*	*n*
1896				1896			
	s	*s*	*s*		*s*	*s*	*s*
June 19.7	−0.72			July 10.4	−0.40		−1.50
22.7	− .54		−1.52	11.4	− .50		−1.53
26.4	− .49	−0.02		16.4	− .30		−1.24
30.4	− .56			16.7	− .43	−0.06	−1.31
July 2.3	− .70			20.3	− .57		
4.7	− .58			27.4	− .66	− .05	−1.66
6.7	− .52		−1.56	Aug. 7.3	−0.59	−0.05	−1.71
7.4	−0.42	−0.06	−1.46				

NOTES.

1. Fall in temperature of 22° F. immediately after Dec. 3.2, followed by a rise of 40° before Dec. 4.8.
2. Fall of 35° since Dec. 10.2, followed by a rise of 38° before Dec. 14.2.
3. Temperature 11° higher than on Dec. 20.2 and 16° higher than on Dec. 30.2.
4. Rise of 11° since Dec. 31.2.
5. Fall of 20° since Jan. 6.1.
6. Fall of 36° since Jan. 22.2, followed by a rise of 13° before Jan. 26.7.
7. Rise of 27° since Mar. 15.2, followed by a fall of 35° before Mar. 18.8.
8. Fall of 43° from May 16.4 to May 17.7, followed by a rise of 12° before May 18.3.
9. Rise of 13° from June 5.7 to June 6.7; but temperature continued rising and was 23° still higher by June 11.4.
10. Fall of 16° from Jan. 7.4 to Jan. 8.8, followed by a rise of 20° before Jan. 10.4.
11. Fall of 30° from Jan. 26.2 to Jan. 26.8; rise of 14° from Jan. 27.8 to Jan. 29.4.
12. Rise of 22° from May 27.7 to May 28.7.
13. Temperature remained high after May 28 until after June 1.7, from which date until June 5.7 there was a fall of 20°.
14. Fall of 18° from Feb. 15.4 to Feb. 16.7. Temperature continued low until Feb. 20 when it rose 18° between Feb. 20.7 and Feb. 21.7.
15. Fall of 14° from Mar. 11.4 to Mar. 11.7; and continued cold weather until Mar. 15.

* Fall of 20° from Nov. 17.4 to Nov. 18.8, 1894.

TABLE II. ADOPTED HOURLY RATES OF THE CLOCK.

Period.	Hourly Rate.	Greatest Difference.
1893, Oct. 1——1894, Nov. 16	+0.020	0.015
1894, Nov. 17——1895, Apr. 3	+ .055	.015
1895, Apr. 9——1895, Oct. 11	+ .028	.018
1895, Oct. 13——1895, Oct. 29	+ .138	.008
1895, Oct. 30——1896, Apr. 11	+ .100	.015
1896, Apr. 13——1896, Aug. 31	+0.070	0.015

TABLE III. CONSTANTS OF THE PARALLAX COEFFICIENTS.

M	α	Log. m	α	M	Proportional Parts.				
$M-180°$	$\alpha-12h$	Log. m	$\alpha-12h$	$M-180°$					
°	h		h		h	7.0	7.5	8.0	8.5
0.0	0.0	9.963	12.0	180.0					
8.2				8.2					
8.2	0.5	9.963	11.5	171.8	0.0	0.0	0.0	0.0	0.0
8.1				8.1					
16.3	1.0	9.965	11.0	163.7	0.1	0.7	0.8	0.8	0.8
8.0				8.0					
24.3	1.5	9.968	10.5	155.7	0.2	1.4	1.5	1.6	1.7
7.9				7.9					
32.2	2.0	9.973	10.0	147.8	0.3	2.1	2.2	2.4	2.6
7.7				7.7					
39.9	2.5	9.977	9.5	140.1	0.4	2.8	3.0	3.2	3.4
7.6				7.6					
47.5	3.0	9.982	9.0	132.5	0.5	3.5	3.8	4.0	4.2
7.4				7.4					
54.9	3.5	9.987	8.5	125.1	0.6	4.2	4.5	4.8	5.1
7.2				7.2					
62.1	4.0	9.991	8.0	117.9	0.7	4.9	5.2	5.6	6.0
7.1				7.1					
69.2	4.5	9.995	7.5	110.8	0.8	5.6	6.0	6.4	6.8
7.0				7.0					
76.2	5.0	9.998	7.0	103.8	0.9	6.3	6.8	7.2	7.6
6.9				6.9					
83.1	5.5	9.999	6.5	96.9	1.0	7.0	7.5	8.0	8.5
6.9				6.9					
90.0	6.0	0.000	6.0	90.0	ε, 1895.0 = 23° 27′ 10″				

TABLE IV. LIST OF PARALLAX AND COMPARISON STARS OBSERVED.

(The parallax stars are distinguished by the heavy type of their reference numbers.)

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	h m s	° ′ ″	s
1	Bradley 3210, *a*			7.1		0 0 45.9	57 51 4	+0.033
2	*β* Cassiopeiae	2.4	II	7.4	1.0	3 34.4	58 34 14	+ .066
3	Bradley 3221			7.0		5 3.9	59 5 20	
4	B. D. +43°, 33			6.8		0 9 47.7	43 37 13	
5	Groombridge 34	8.1		8.0	2.8	12 23.1	43 25 39	+ .255
6	B. D. +43, 54			7.8		14 34.5	43 20 39	
7	Argent. G. C. 507			8.0		0 29 49.2	−26 39	
8	Piazzi o, 130	5.6		5.8	1.4	31 57.2	−25 17	+ .104
9	Argent. G. C. 570			7.6		33 23.7	−24 7	
10	B. D. +56°, 123			8.0		0 39 12.2	56 59 25	
11	*η* Cassiopeiae	3.6	I	6.1	1.2	42 44.6	57 15 33	+ .135
12	B. D. +57, 158, *prec.*			8.1		44 36.2	58 10 21	
13	B. D. +7°, 104			8.0		0 40 14.1	7 17	
14	Mayer 20	5.7	I	8.2	1.4	42 52.5	4 44	+ .050
15	B. D. +2, 114			8.2		45 0.0	2 49	
16	Bradley 91			6.4		45 53.7	2 49	
17	B. D. +54°, 215			7.9		0 58 32.2	55 12 50	
18	*μ* Cassiopeiae	5.2	I	7.7	3.7	1 1 17.0	54 24 18	+ .386
19	B. D. +53, 236			6.9		3 32.7	54 10 36	
20	B. D. −6°, 256			7.0		1 15 59.7	− 6 42.9	
21	♑ Ceti	3.8	I	6.3	0.2	18 46.5	− 8 43.5	.000
22	B. D. −10, 309			7.3		22 13.5	− 9 49.7	
23	B. D. +42°, 293			6.6		1 18 10.9	42 34.9	
24	*ω* Andromedae	4.8	I	7.2	0.5	21 22.3	44 51.9	0.000
25	B. D. +48, 453			6.6		24 36.1	48 47.4	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	*h* *m* *s*	° ′ ″	*s*
26	B. D. −17°, 300			8.2		1 35 10.8	−17 30	
27	τ Ceti	3.6	I	6.3	1.9	39 11.4	−16 29	−0.124
28	B. D. −15, 321			7.5		43 31.0	−15 17	
29	Bradley 279			7.3		1 58 24.2	25 24 56	
30	α Arietis	2.0	II	7.2	0.1	2 1 15.2	22 57 57	.000
31	B. D. +19°, 329			8.0		3 37.8	19 51 2	
32	B. D. +30°, 354			7.3		2 8 12.7	30 14 5	
33	δ Trianguli	5.0	I	7.4	1.2	10 38.5	33 44 34	+ .090
34	B. D. +36, 458			7.8		12 14.7	36 34 49	
35	B. D. +36, 464			7.6		14 39.3	36 34 43	
36	B. D. +6°, 384			(8.0)		2 27 26.9	6 29	
37	Piazzi ii, 123	6.5		(6.5)	2.4	30 19.3	6 23	+ .123
38	B. D. +5, 374			(7.0)		34 43.4	5 40	
39	B. D. +47°, 760			(7.0)		2 56 45.2	47 26 9	
40	ι Persei	4.3	I	(6.8)	1.3	3 1 29.3	49 12 43	+ .127
41	B. D. +51, 696			(7.8)		6 15.8	51 23 28	
42	B. D. +41°, 742			7.4		3 38 24.4	41 40 18	
43	Lalande 6888-9, *prec.*	8.2		8.3	1.4	39 51.8	41 8 8	+ .053
44	B. D. +40, 842			7.8		41 54.6	40 20 37	
45	B. D. +36°, 805			6.7		3 54 21.5	36 41 30	
46	Lalande 7443	8.5		8.4	2.2	56 11.9	35 1 11	+ .140
47	B. D. +33, 776			6.9		58 50.2	33 57 14	
48	B. D. −9°, 837			6.1		4 5 44.3	− 9 4.8	
49	B. D. −9, 843			6.9		6 52.7	− 9 6.0	
50	o^2 40 Eridani	4.5	I	7.4	4.1	10 26.3	− 7 49.0	−0.144
51	B. D. −6, 862			6.3		12 11.3	− 6 42.5	
52	B. D. −6, 875			6.6		15 29.3	− 6 30.0	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	*h* *m* *s*	° ′ ″	*s*
53	B. D. +17°, 750, *prec.*			7.9		4 27 27.9	17 47.9	
54	α Tauri	1.0	II	6.0	0.2	29 53.7	16 17.9	+0.0035
55	89 Tauri			6.2		32 7.5	15 48.9	
56	B. D. +9°, 651			7.7		4 41 20.8	9 51.8	
57	B. D. +16, 654			7.9		42 38.9	16 26.9	
58	Lalande 9091	7.5		7.2		45 23.2	10 53.3	.000
59	Lalande 9109	6.8		6.8		45 54.5	13 28.7	.000
60	B. D. +11, 672			7.8		48 50.0	11 52.2	
61	62 b Eridani		I	8.2		4 51 14.1	− 5 19.5	
62	Weisse-Bessel iv, 1189	6.3		6.4	1.3	55 36.3	− 5 51.9	+ .040
63	B. D. −6°, 1075			7.3		59 9.9	− 6 9.8	
64	B. D. +46°, 979			7.8		5 6 0.1	46 50 58	
65	α Aurigae	0.2	III	7.8	0.4	8 55.9	45 53 27	+ .008
66	B. D. +44, 1170			6.8		12 34.3	44 18 53	
67	B. D. −3°, 1116			5.9		5 24 8.8	− 3 31.3	
68	Weisse-Bessel v, 592	8.7		8.1	2.2	26 8.8	− 3 41.7	+ .047
69	B. D. −3, 1136			6.8		28 22.8	− 3 31.7	
70	B. D. +47°, 1214			7.9		5 48 26.8	47 42.2	
71	β Aurigae	2.1	II	7.3	0.1	51 49.6	44 56.2	.000
72	Bradley 865			6.6		55 18.4	43 22.5	
73	B. D. −15°, 1478			7.6		6 37 17.0	−15 54.1	
74	α Canis Majoris	−1.4	III	6.6	1.3	40 31.4	−16 34.3	− .037
75	B. D. −17, 1626			7.5		42 57.2	−17 22.9	
76	B. D. −1°, 1395			7.8		6 44 24.6	− 1 13.5	
77	97 Monocerotis	6.7		6.2	0.2	45 28.2	− 0 24.8	0.000
78	B. D. +2, 1448			7.4		47 30.0	+ 2 52.3	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	*h* *m* *s*	° ′ ″	*s*
79	B. D. +30°, 1387			7.7		6 53 27.9	30 24.5	
80	Piazzi vi, 305	6.0		6.1	0.8	56 50.1	29 30.8	+0.013
81	B. D. +28, 1314			6.6		7 0 49.5	28 20.7	
82	ρ Geminorum		I	6.9		7 22 21.6	31 58.8	+ .009
83	α Geminorum, *seq.*	2.8	II	7.5	0.2	27 54.0	32 7.1	− .015
84	Bradley 1101			6.5		33 10.5	32 14.3	
85	B. D. +6°, 1729			6.3		7 30 59.1	6 5.6	
86	α Canis Minoris	0.5	II	5.9	1.3	33 48.3	5 29.6	− .0475
87	B. D. +5, 1759			6.9		37 47.1	5 12.1	
88	B. D. +31°, 1376			7.2		7 44 20.6	31 52.2	
89	Lalande 15290	8.2		8.3	2.0	46 50.6	30 55.7	+ .061
90	B. D. +30, 1612			7.0		49 41.6	30 7.7	
91	Lalande 15565	7.5		7.3	1.2	54 2.0	29 32.0	− .012
92	χ Geminorum		I	7.7		57 3.8	28 5.4	− .003
93	B. D −10°, 2451			8.0		8 12 5.7	−10 32.8	
94	Lalande 16304	6.0		6.3	1.0	13 24.9	−12 16.6	+ .016
95	B. D. −13, 2491			7.9		15 51.9	−14 1.9	
96	B. D. +58°, 1120			8.0		8 19 3.6	58 31 48	
97	*o* Ursae Majoris	3.4	II	8.3	0.2	21 32.4	61 4 8	− .019
98	B. D. +63, 784			8.2		24 1.0	63 12 17	
99	Argent. G. C. 11441			8.0		8 26 33.6	−30 47.0	
100	Lacaille 3386	6.9		7.2	1.3	28 45.6	−31 10.0	− .088
101	Argent. G. C. 11595			7.5		32 8.4	−31 53.9	
102	B. D. +70°, 536			7.2		8 41 9.9	70 41 20	
103	A. Oe. 9342, *prec.*	8.5		8.5	1.4	45 30.6	71 12 3	−0.280
104	B. D. +71, 484			7.0		48 1.2	71 3 29	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
				″		h m s	° ′ ″	s
105	B. D. +46°, 1458			6.8		8 49 25.2	46 9 52	
106	ι Ursae Majoris	3.2	II	8.2	0.5	52 1.2	48 27 13	—0.044
107	B. D. +50, 1601			7.2		55 41.4	50 21 39	
108	B. D. +40°, 2125			6.1		8 49 41.7	40 36 12	
109	10 Ursae Majoris	4.2	I	6.5	0.6	53 49.5	42 11 54	— .040
110	B. D. +44, 1817			7.5		57 30.3	43 51 28	
111	B. D. +51°, 1488			6.8		9 4 37.6	50 52 10	
112	Lalande 18115, *prec.*	8.0		7.8	1.7	7 14.2	53 8 15	— .178
113	18 e Ursae Majoris		I	7.6		8 38.8	54 27 22	+ .006
114	B. D. +50°, 1644			7.3		9 21 50.7	50 29 17	
115	ϑ Ursae Majoris	3.2	II	8.1	1.1	25 50.1	52 9 20	— .104
116	B. D. +54, 1314			8.0		29 14.1	54 35 17	
117	Lalande 18891			8.3		9 32 42.9	43 23 36	
118	Lalande 19022	8.0		8.0	0.8	36 47.7	43 8 50	.000
119	Lalande 19155			8.6		41 24.3	42 52 9	
120	18 Leonis Minoris			6.8		9 50 21.7	32 52.8	
121	20 Leonis Minoris	6.0	I	8.0	0.7	54 57.1	32 26.4	— .043
122	Lalande 19615			8.3		57 51.1	31 59.6	
123	B. D. +51°, 1577			7.8		10 2 23.0	51 20 5	
124	A. Oe. 10603	6.8		6.7	1.4	4 56.6	49 59 8	— .140
125	B. D. +48, 1847			7.7		9 0.8	47 53 39	
126	B. D. +36°, 2139			(6.0)		10 53 41.4	36 41.0	
127	Lalande 21185	7.3		(7.3)	4.7	57 36.0	36 40.4	—0.044
128	B. D. +37, 2155			(7.8)		11 1 13.8	37 18.2	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R.A.
					"	h m s	° ′ ″	s
129	B. D. +45°, 1887			(7.8)		10 57 42.1	44 53.5	
130	Lalande 21258	8.5		(8.5)	4.4	11 0 15.7	44 4.0	−0.404
131	B. D. +43, 2083			(6.5)		3 45.7	43 46.7	
132	B. D. +72°, 522			(8.5)		11 5 51.2	72 10 58	
133	Fed. 1831, *prec.*	6.5		(6.5)	0.4	8 18.6	74 2 38	— .105
134	B. D. +75, 439			(7.8)		12 19.7	75 39 41	
135	B. D. +67°, 691			(6.8)		11 12 21.0	67 15 29	
136	A. Oe. 11677	9.0		(9.0)	3.0	14 34.4	66 24 58	— .503
137	B. D. +65, 830			(8.0)		18 1.0	65 37 35	
138	ξ Hydrae			(3.8)		11 27 50.4	−31 16.6	— .017
139	Bradley 1584	6.2		(6.2)	1.1	29 23.4	−32 16.5	— .053
140	Bradley 1587			(6.2)		31 22.8	−32 59.2	+ .014
141	B. D. +37°, 2216			(8.0)		11 43 39.6	37 42.0	
142	Groombridge 1830	6.4		(6.4)	7.0	46 55.8	38 28.3	+ .344
143	B. D. +39, 2478			(6.5)		49 55.8	39 20.8	
144	Bradley 1614			(6.5)		11 50 19.6	−27 53.5	
145	Lacaille 4955	7.7		(7.7)	1.2	52 43.6	−27 6.3	— .074
146	Argent. G. C. 16408			(8. ..)		55 38.8	−25 53.7	
147	B. D. −10°, 3420			(8.0)		12 7 0.8	−11 4.1	
148	Lalande 22954-68	6.1		(6.1)	1.0	9 46.4	− 9 42.0	+ .005
149	B. D. −8, 3316			(7.5)		13 8.0	− 8 18.6	
150	B. D. +25°, 2599			7.1		13 2 59.0	25 24.1	
151	43 Comae Berenices	4.4	I	6.9	1.2	6 58.4	28 24.6	−0.060
152	B. D. +30, 2383			7.4		8 44.6	30 22.1	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					"	h m s	° ′ ″	s
153	57 Virginis			(5.4)		13 10 18.0	−19 23	
154	61 Virginis	4.8		(4.8)	1.5	12 54.6	−17 44	−0.076
155	63 Virginis			(5.5)		17 23.4	−17 11	
156	B. D. +7°, 2673			8.3		13 31 30.1	7 23.3	
157	Lalande 25224	5.6	I	8.1		34 24.1	11 16.8	.000
158	B. D. +15, 2609			7.4		37 26.3	15 40.2	
159	Lalande 25372	8.5		8.2	2.3	40 24.8	15 27.6	+ .125
160	B. D. +14, 2664			7.8		42 57.2	13 52.1	
161	B. D. +18°, 2848			7.9		14 9 15.7	18 35.1	
162	α Boötis	0.0	III	7.6	2.3	10 52.3	19 43.8	− .080
163	B. D. +21, 2638			7.2		13 30.1	21 46.8	
164	B. D. −14°, 3959			7.6		14 21 38.8	−14 21.9	
165	Lalande 26481	8.0		8.3	0.5	25 32.2	−15 9.7	.000
166	B. D. −16, 3892			7.6		28 15.4	−16 21.6	
167	Argent. G. C. 20080			6.0		14 43 14.7	−23 48 53	
168	Lalande 27026	8.2		7.8	1.0	45 42.9	−23 51 32	− .066
169	Argent. G. C. 20173			7.4		47 48.9	−23 32 43	
170	B. D. −19°, 3979			7.7		14 49 8.5	−19 35 4	
171	Piazzi xiv, 212, *seq.*	5.9		6.1	2.0	51 19.9	−20 56 31	+ .072
172	B. D. −21, 4004			8.1		52 38.5	−21 58 44	
173	B. D. +53°, 1744			7.6		14 48 48.6	53 1 5	
174	Lalande 27298	7.7		7.6	1.1	52 12.0	54 5 27	− .110
175	B. D. +54, 1724, *seq.*			7.0		56 27.0	54 16 39	
176	B. D. −1°, 3030			7.6		15 6 9.2	− 1 51.9	
177	Lalande 27744	7.0		6.9	1.3	8 35.0	− 0 56.7	−0.085
178	4 Serpentis			5.8		10 28.4	+ 0 45.8	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	*h* *m* *s*	° ′ ″	*s*
179	B. D. +1°, 3059			6.8		15 13 1.6	+ 1 20	
180	6 Serpentis	5.5		5.7	0.1	15 41.2	+ 1 6	0.000
181	8 Serpentis			6.5		18 18.4	− 0 39	
182	B. D. +56°, 1804			7.8		15 22 20.2	55 58 15	
183	Lalande 28358	6.9		7.1	0.3	26 26.8	57 48 3	− .031
184	B. D. +60, 1615			7.9		29 35.8	60 3 56	
185	B. D. −13°, 4226			7.3		15 35 25.3	−13 37.3	
186	Lalande 28607	7.0		7.6	1.2	37 26.5	−10 35.4	− .076
187	B. D. −7, 4101			7.9		41 36.1	− 8 7.4	
188	B. D. +14°, 2951			7.8		15 46 40.3	14 14	
189	γ Serpentis	4.0	I	6.6	1.3	51 36.1	16 0	+ 0195
190	5 r Herculis		I	7.8		56 25.3	18 7	− .005
191	B. D. +36°, 2689			7.7		16 1 57.7	36 47.1	
192	τ Coronae Borealis	5.2	I	7.4	0.4	5 7.9	36 43.9	.000
193	B. D. +36, 2706			6.0		7 57.7	36 40.3	
194	B. D. +3°, 3199			6.6		16 22 16.2	3 6.3	
195	Lalande 30044	7.6		7.6	1.4	25 18.6	4 26.8	− .030
196	23 n Herculis			5.9		27 25.2	5 44.2	
197	B. D. +42°, 2736			7.6		16 37 34.6	42 39.9	
198	η Herculis	3.7	I	6.2	0.1	39 17.8	39 7.3	.000
199	B. D. +35, 2867			7.6		42 0.4	35 49.2	
200	B. D. −2°, 4259			6.6		16 44 50.2	− 2 28.1	
201	Lalande 30694	7.0		6.9	1.6	47 41.2	+ 0 11.5	−0.050
202	B. D. +1, 3346			7.9		50 47.2	+ 1 35.5	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	h m s	° ′ ″	s
203	30 Ophiuchi		I	7.5		16 55 31.5	− 4 4.0	
204	Lalande 31055	7.5		7.9	1.5	59 35.4	− 4 53.3	−0.062
205	B. D. −5°, 4409			8.5		17 3 14.7	− 5 3.4	
206	Argent. G. C. 23317			7.1		17 7 27.0	−27 40.2	
207	36 Ophiuchi, *prec.*	4.7		6.4	1.2	8 53.4	−26 26.9	− .0385
208	Bradley 2179	6.8		6.8	1.2	9 46.0	−26 23.7	− .0385
209	39 Ophiuchi			5.7		11 36.6	−24 10.2	− .006
210	B. D. +31°, 3993			7.4		17 13 28.8	31 38.4	
211	72 w Herculis	5.4	I	7.9	1.0	16 43.8	32 36.2	+ .008
212	B. D. +34, 2956			7 9		18 54.6	34 16.5	
213	B. D. +0°, 3678			7.9		17 17 42.1	0 56.9	
214	Weisse-Bessel xvii,322	8.0		7.7	1.2	20 31.9	2 14.4	— .040
215	B. D. +3, 3423			8.4		24 16.3	3 6.4	
216	β Draconis		II	8.0		17 28 3.5	52 22 46	— .002
217	ν^1 Draconis	4.8	I	7.6	0.2	30 6.5	55 15 22	+ .018
218	ν^2 Draconis	4.8	I	7.6	0.2	30 11.9	55 14 40	+ .018
219	B. D. +57°, 1780			6.4		31 48.5	57 37 40	
220	B. D. +67°, 1021			7.7		17 33 27.4	67 16 8	
221	A. Oe. 17415-16	9.1		8.9	1.3	37 1.9	68 26 7	— .069
222	B. D. +68, 947			8.0		37 12.0	68 26 18	
223	B. D. +69, 939			7.3		41 0.5	69 11 41	
224	67 Ophiuchi		I	6.8		17 55 27.3	2 56.4	+ .002
225	70 Ophiuchi	4.1	I	6.8	1.1	18 0 8.9	2 31.4	+0.013
226	B. D. +2°, 3498			6.8		2 49.7	2 11.9	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
				″		h m s	° ′ ″	s
227	B. D. +36°, 3189			8.4		18 30 53.6	36 2.6	
228	α Lyrae	0.2	III	7.8	0.4	33 23.0	38 41.2	+0.017
229	B. D. +40, 3146			6.4		36 10.4	40 50.3	
230	B. D. +59°, 1911			7.0		18 37 51.0	59 25 50	
231	Pos. Med. 2164, *prec.*	8.2		8.5	2.3	41 36.6	59 28 12	— .171
232	B. D. +59, 1921			7.2		44 33.0	59 34 16	
233	B. D. +35°, 3399			7.4		18 50 8.4	35 38.7	
234	Bradley 2388	6.7		5.6	0.2	53 5.4	32 46.0	.000
235	B. D. +29, 3444			7.2		57 13.2	29 22.3	
236	B. D. +10°, 3873			7.6		19 16 55.3	10 43.2	
237	31 b Aquilae	5.3	I	7.8	1.0	19 57.7	11 43.2	+ .049
238	B. D. +11, 3842			7.5		22 1.3	11 51.2	
239	B. D. +67°, 1156			7.6		19 28 38.0	67 24 21	
240	σ Draconis	4.7	I	7.4	1.9	32 33.6	69 28 57	+ .097
241	B. D. +71, 964			7.2		35 28.2	71 22 25	
242	B. D. +10°, 4058			6.6		19 43 31.2	10 26.3	
243	α Aquilae	1.0	III	8.4	0.6	45 39.6	8 35.5	+ .035
244	B. D. +6, 4351			6.4		49 32.4	6 51.8	
245	B. D. +22°, 3887			7.8		19 56 12.2	22 26.3	
246	Lalande 38383	7.0		7.3	1.0	59 29.0	23 4.3	— .074
247	17 Vulpeculae		I	7.7		20 2 23.0	23 18.8	
248	Argent. G. C. 27621			7.8		20 4 58.8	−28 59.8	
249	Piazzi xx, 29	6.2		6.1	1.3	8 44.4	−27 20.8	+0.094
250	Argent. G. C. 27834			7.7		13 28.8	−25 33.3	

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.			Declination 1895.0.			Ass'd Pr. Mot. in R. A.
					″	*h*	*m*	*s*	°	′	″	*s*
251	B. D. —22°, 5406			7.8		20	15	58.0	—22	17.6		
252	O. Arg. S. 20452	8.2		8.7	1.2		17	23.8	—21	40.6		+0.037
253	B. D. —19, 5809			7.1			19	1.0	—19	46.6		
254	4 ζ Delphini		I	7.4		20	30	24.3	14	18.3		
255	β Delphini	3.7	I	6.0	0.1		32	37.5	14	13.8		.000
256	B. D. +14°, 4389			7.9			35	47.7	14	8.8		
257	B. D. +35°, 4234			6.2		20	39	17.6	35	12.6		
258	ε Cygni	2.7	II	7.5	0.5		41	57.8	33	34 6		+ .028
259	B. D. +30, 4185			7.5			44	17.6	30	25.1		
260	B. D. +37°, 4159			8.0		20	59	11.3	37	43.0		
261	61 Cygni, *prec.*	5.5	I	7.8	5.2	21	2	11.3	38	14.0		+ .344
262	B. D. +38, 4362			7.5			5	2.9	38	17.0		
263	B. D. +7°, 4645			7.5		21	7	43.5	7	14.9		
264	δ Equulei	4.6	I	7.0	0.3		9	21.9	9	34.9		.000
265	B. D. +10, 4498			7.4			10	48.3	11	2.4		
266	C. D. —29°, 17692			6.8		21	12	42.6	—29	12.4		
267	Lacaille 8777	6.7		7.1	0.4		13	41.4	—26	47.1		— .043
268	C. D. —23, 16877			6.0			16	59.4	—23	7.2		
269	B. D. —1°, 4180			6.4		21	32	10.4	— 0	51		
270	24 Aquarii	7.3		6.9	0.2		34	6.8	— 0	32		+ .014
271	B. D. —0, 4249			7.9			36	33.8	— 0	8		
272	B. D. +24°, 4455			7.7		21	38	24.6	25	2.6		
273	κ Pegasi	4.2	I	6.5	0.0		39	53.4	25	9.7		0.000
274	B. D. +25, 4616			7.8			41	31.8	25	26.2		

TABLE IV (Continued).

Ref. No.	Designation of Star.	Cat. Mag.	Screen.	Appar. Mag. Est'd.	Prop. Mot.	Right Ascension 1895.0.	Declination 1895.0.	Ass'd Pr. Mot. in R. A.
					″	*h* *m* *s*	° ′ ″	*s*
275	B. D. +5°, 5008			7.7		22 17 17.9	+ 5 57	
276	34 Pegasi	5.7		6.0	0.3	21 16.7	+ 3 51	+0.017
277	B. D. —0, 4371			7.8		24 46.7	— 0 24	
278	B. D. +56°, 2958			7.2		23 5 35.7	56 53 6	
279	Bradley 3077	5.5		5.9	2.1	8 13.5	56 35 19	+ .249
280	B. D. +55, 2929			8.0		11 11.1	56 6 32	
281	B. D. —14°, 6429			7.9		23 9 50.3	—14 34.6	
282	W. B. xxiii, 175	8.2		8.2	1.3	11 38.9	—14 23.4	— .035
283	94 Aquarii		I	7.8		13 35.3	—14 0.8	
284	B. D. +2°, 4710			8.1		23 41 57.6	2 18.9	
285	Lalande 46650	8.7		8.6	1.4	43 43.2	1 50.7	+ .065
286	B. D. +1, 4786			7.2		45 44.4	1 39.9	
287	B. D. +26°, 4721			7.9		23 53 56.0	26 41.1	
288	85 Pegasi	5.8		6.0	1.3	56 41.0	26 31.6	+0.031
289	B. D. [illegible] 5068			6.2		59 31.0	26 4.2	

1. Σ 3062. Mags. = 6.9—8, $P = 19°$, $d = 1.4''$ approximately, period = 75 yrs. 8. Lalande 949. 21. β 505. 24. β 999. 37. Lalande 4803. 43. Σ 443. 53. Σ 559. 58. β 883. With stars 56 and 60. 59. 11 Orionis, β 552. With stars 57 and 60. 77. Lalande 13198-200, β 897. 97. β 1067. 112. Fed. 1457-58 *prec.* 114. Correction to the B. D. declination = +0′.5, from comparison with the A. G. Zones; unless there be a considerable proper motion. 118. Bonn Beob. vii, 85. 124. Groombridge 1618. 133. Σ 1516 *prec.* 139. 20 Crateris. Too far south for employment of the screens. 231. Σ 2398 *prec.* 157. β 612. 165. β 117. 171. Lalande 27173 *seq.* 174. Fed. 2544. 180. β 32. 183. β 945. 192. β 1087. 208. Lacaille 7203. 231. Σ 2398 *prec.* 234. β 648. 249. Lalande 38692, Lacaille 8381. 254. Correction to the B. D. declination = —1.′4, from comparison with Auwers-Bradley and Glasgow, 1870. 258. β 676. 267. β 271. 270. β 1212. 273. β 989. 276. β 290.

TABLE V. REDUCTION CONSTANTS FOR THE PARALLAX GROUPS.

No. of Star.	Da 1=0s.000,1	Db 1=0s.000,01	Dc 1=0s.000,01	Dd 1=0s.000,01	Log 2 P'	$\frac{1}{2}Dm$	$\frac{1}{2}D\alpha$	$\frac{1}{2}D\delta$
							s	′
2	−116	− 5·	− 7·	− 71	9.371	−0.35	− 40	− 6.0
5	− 21	+ 23	+ 15	− 16	.227	−0.7	− 12	+ 3.3
8	+ 16	− 34	+ 20	− 22	.133	+2.0	− 21	− 6.0
11	− 39	+29·	+24·	− 41	.358	+1.95	− 50	+19.3
14[1]	+ 15	+ 76	+ 19	− 11	.092	−0.1	− 15	+19.0
14[2]	+ 18	+ 76	+ 15	+ 14	9.092	−1.0	+ 11	+19.0
18	+ 64	+21·	+17·	+ 17	.325	−0.3	− 14	+17.4
21	+ 57	+103	− 23	+ 14	.098	+0.85	+ 20	+27.2
24	+362	+429	+333	+137	.243	−0.6	+ 2	+49.3
27	+ 24	+ 19	− 13	+ 05	.113	+1.55	+ 10	+ 5.5
30	− 96	− 60	− 3	− 15	9.134	+0.45	− 14	−20.0
33[1]	− 88	− 58	− 3	− 26	.179	+0.15	− 25	−20.1
33[2]	− 3	− 86	− 49	+ 47	.179	+0.05	+ 48	−20.2
37	− 84	− 60	− 34	+ 29	.105	+1.0	+ 46	+18.5
40	+251	+ 87	+ 73	+105	.292	+0.6	+ 1	+12.1
43	− 65	− 37	− 35	− 11	9.236	−0.7	+ 18	− 7.7
46	+216	+ 51	+ 15	+ 77	.203	−1.6	+ 24	+18.2
50[1]	+ 10	− 3	− 9	+ 04	.121	−1.05	+ 10	+ 1.6
50[2]	− 28	− 19	+ 51	− 22	.121	−0.8	− 54	− 5.2
54	+234	+ 53	+ 19	+ 31	.138	+1.05	− 6	+30.5
58	− 9	− 2	+ 17	− 04	9.130	+0.55	− 18	− 1.3
59	+321	+ 65	+ 29	+ 43	.134	+1.05	− 10	+40.9
62	+ 55	+ 7	+ 21	− 11	.125	+1.35	− 24	+ 7.3
65	−264	− 42	− 41	− 84	.280	−0.5	+ 21	−18.5
68	+ 80	+ 9	− 8	− 7	.125	−1.75	+ 7	+10.2

TABLE V (Continued).

No. of Star.	Da 1=0s.000,1	Db 1=0s.000,01	Dc 1=0s.000,01	Dd 1=0s.000,01	Log 2 P'	$\frac{1}{2}Dm$	$\frac{1}{2}D\alpha$	$\frac{1}{2}D\delta$
							s	′
71	+641	+ 24	+ 16	+237	9.275	−0.05	+ 3	+36.2
74	− 39	− 02	+ 23	+ 11	.142	+0.95	− 24	− 4.2
77	+562	+186	− 29	+ 3	.123	+1.4	+ 29	+74.2
80	− 80	+ 05	− 12	− 25	.183	+1.05	+ 18	− 8.2
83	− 8	+ 05	+ 11	− 2	.192	−0.8	− 8	− 0.5
86	+ 63	− 16	− 32	− 10	9.122	+0.7	+ 35	+ 9.2
89	+ 44	− 13	− 15	+ 9	.184	−1.2	+ 10	+ 4.3
91	−193	+ 84	+ 70	− 27	.177	+0.05	− 39	−25.4
94	+ 2	+ 12	− 34	− 12	.125	+1.65	+ 34	− 0.8
97	− 78	− 02	− 16	− 15	.428	−0.2	0	−12.1
100	− 65	+ 51	− 49	− 1	9.180	+0.55	+ 35	−10.4
103	−889	+589	+569	−409	.601	−1.4	− 55	−19.6
106	−144	+ 3	− 23	− 58	.287	−1.2	+ 32	−11.5
109	+ 43	− 22	− 11	+ 24	.238	+0.3	− 14	+ 1.9
112	−303	+211	+173	− 97	.328	−0.6	− 36	−28.5
115	+372	−232	−188	+163	9.315	−0.45	− 18	+23.0
118	− 28	+ 2	− 5	− 19	.238	+0.45	+ 16	− 1.0
121	+ 55	+ 19	+ 33	+ 49	.172	−0.45	− 51	− 0.2
124	−239	+143	+ 79	−111	.288	+1.05	+ 45	−22.3
127	+ 71	−113	− 62	+ 26	.186	−0.4	− 8	+19.2
130	+ 17	−127	− 96	− 13	9.234	−1.35	+ 28	+16.1
133	−376	−233	−248	−188	.651	+1.65	+ 47	− 7.3
136	−102	− 87	− 85	− 60	.487	−1.6	+ 37	+ 1.6
139	+ 32	− 43	+ 20	− 19	.161	−1.2	+ 13	+ 8.6
142	+ 6	− 21	− 1	+ 8	.194	+0.85	− 8	+ 3.1
145	+ 12	− 62	+ 29	− 16	9.138	−0.45	+ 16	+12.7
148	− 3	− 1	− 7	− 17	.094	+1.65	+ 18	+ 0.6

TABLE V (Continued).

No. of Star.	*Da* 1=0^s.000,1	*Db* 1=0^s.000,01	*Dc* 1=0^s.000,01	*Dd* 1=0^s.000,01	Log 2 *P'*	½*Dm*	½*Dα*	½*Dδ*
							^{s}	′
151	+128	+126	+ 25	+ 81	9.147	+0.35	− 67	−31.5
154	+115	+129	− 28	− 67	.113	+0.65	+ 56	−33.0
157	− 82	− 63	− 37	− 25	.102	−0.25	+ 4	+15.0
159	+157	+151	+ 33	+ 32	9.111	−0.6	− 13	−41.4
162	−160	− 97	− 24	− 54	.125	−0.05	+ 31	+27.2
165	+ 53	+ 45	− 31	+ 19	.117	−0.7	− 35	−12.1
168	− 73	− 34	+ 9	+ 23	.143	−1.1	− 11	+10.7
171	− 68	− 25	− 8	+ 27	.136	+1.8	− 26	+ 9.6
174	+333	+238	+211	+124	9.338	−0.3	+ 26	−26.6
177	−138	− 60	− 12	+ 13	.108	−0.2	− 16	+23.7
180	+270	+114	− 3	0	.109	+0.95	− 1	−45.5
183	−404	−185	−182	−171	.385	+0.75	− 29	+13.0
186	+119	+ 40	+ 32	− 59	.121	0.0	+ 64	−17.0
189	− 92	− 17	− 9	− 17	9.132	+1.2	− 3	+10.5
192	+ 12	− 6	− 11	+ 8	.214	−0.55	− 10	− 0.2
195	+ 9	+ 3	− 27	+ 7	.122	−1.35	− 28	− 1.6
198	−212	− 29	− 7	− 97	.231	+1.4	+ 30	+ 7.3
201	+276	+ 51	+ 4	− 8	.122	+0.35	+ 8	−37.8
204	−148	− 21	− 13	+ 11	9.125	+0.1	− 12	+20.6
207	−276	− 45	+ 53	+ 48	.171	0.0	+ 38	+31.7
208	−257	− 17	− 5	+ 55	.171	−0.4	− 14	+28.5
211	−235	− 38	− 47	− 65	.197	−0.25	− 32	+21.2
214	+ 96	+ 13	+ 26	− 7	.124	+0.45	+ 27	−12.8
217	+124	+ 10	− 3	+ 25	9.367	−0.4	− 10	−15.2
218	+108	+ 1	− 12	+ 17	.367	−0.4	− 16	−14.4
221[1]	+552	+ 84	+ 82	+252	.560	−1.4	+ 12	−12.2
221[2]	− 8	+ 12	+ 13	− 4	.560*	−0.9	+ 10	+ 0.2
225	− 21	− 4	− 61	+ 7	.125	0.0	− 62	+ 2.8

TABLE V (Continued).

No. of Star.	Da 1=0s.000,1	Db 1=0s.000,01	Dc 1=0s.000,01	Dd 1=0s.000,01	Log 2 P'	$\frac{1}{2}Dm$	$\frac{1}{2}D\alpha$	$\frac{1}{2}D\delta$
							s	′
228	+131	+ 8	+ 14	+ 21	9.231	−0.4	+ 9	−14.8
231	− 8	− 33	− 42	− 4	.418	−1.4	− 25	+ 1.8
234	+102	− 6	+ 29	+ 17	.198	+1.7	+ 35	−15.5
237	+197	− 40	− 33	+ 13	.130	−0.25	− 29	−26.0
240	−328	+ 45	+ 41	−177	.576	0.0	− 30	− 5.6
243	− 27	+ 9	+ 47	+ 19	9.123	−1.9	+ 52	+ 3.5
246	+ 92	− 29	− 27	+ 25	.152	+0.45	− 11	−11.7
249	− 24	+ 1	+ 24	+ 15	.167	+1.65	+ 29	+ 4.2
252	−281	+ 97	− 27	+ 49	.146	−1.25	+ 6	+38.5
255	+ 12	+ 5	+ 21	+ 17	.125	+1.65	+ 28	− 0.2
258	+333	−160	− 86	+ 78	9.189	−0.75	− 10	−45.8
261	+125	− 64	− 40	+ 39	.211	−0.05	− 4	−14.0
264	+141	− 81	− 11	+ 2	.112	+0.45	− 6	−26.3
267	−249	+103	+ 9	+ 85	.154	−0.7	+ 70	+37.3
270	− 11	+ 8	+ 6	+ 11	.101	+0.25	+ 15	+ 2.5
273	− 21	+ 21	+ 13	− 3	9.145	+1.25	+ 5	+ 4.7
276	+185	−232	− 1	− 15	.096	+1.75	− 14	−64.5
279	+ 49	− 70	− 57	+ 26	.349	+1.7	+ 10	− 5.5
282	− 11	+ 23	− 7	+ 5	.104	−0.35	+ 4	+ 5.7
285	− 6	+ 34	+ 3	+ 8	9.088	−0.95	+ 8	+ 8.7
288[1]	− 81	+ 22	+ 7	− 90	9 136*	+1.9	−165	+ 9.5
288[2]	+ 78	− 68	− 33	+ 86	9.136*	+0.2	+170	−27.4

14[1]. With stars 13 and 15.
14[2]. With stars 13 and 16.
33[1]. With stars 32 and 34.
33[2]. With stars 32 and 35.
50[1]. With stars 48 and 52.
50[2]. With stars 49 and 51.
221[1]. With stars 220 and 223.
221[2]. With star 222.
288[1]. With star 287.
288[2]. With star 289.

* The reduction was made with log P′.

TABLE VI. COEFFICIENTS FOR PROPER MOTION, PRECESSION, AND NUTATION.

Date.	τ	A'	B	C	D
'93, Sept. 18	−1.282	−1.40	−9.0	+18.7	− 1.3
Oct. 8	1.228	1.36	9.1	18.0	+ 5.7
28	1.173	1.31	8.8	15.1	12.0
Nov. 17	1.118	1.24	8.6	10.5	17.0
Dec. 7	1.063	1.17	8.2	+ 4.4	19.9
27	−1.009	−1.09	−8.3	− 2.2	+20.3
94 Jan. 16	0.954	1.02	8.5	8.6	18.2
Feb. 5	.899	0.95	9.0	13.8	13.8
25	.844	.90	9.3	17.4	7.8
Mar. 17	.790	.84	9.5	18.7	+ 0.9
Apr. 6	− .735	− .80	−9.5	−17.9	− 6.1
26	.680	.75	9.1	15.0	12.3
May 16	.625	.70	8.9	10.4	17.0
June 5	.571	.62	8.5	− 4.7	19.8
25	.516	.55	8.6	+ 1.5	20.4
July 15	− .461	− .47	−8.6	+ 7.5	−18.7
Aug. 4	.406	.40	9.2	12.8	15.0
24	.352	.35	9.4	16.6	9.6
Sept. 13	.297	.30	9.7	18.5	− 3.1
Oct. 3	.242	.26	9.6	18.4	+ 3.9
23	− .187	− .21	−9.4	+16.1	+10.5
Nov. 12	.132	.16	9.0	11.9	15.9
Dec. 2	.078	− .08	8.7	+ 6.1	19.3
22	− .023	.00	8.6	− 0.5	20.4
95 Jan. 11	+0.032	+0.08	−8.7	− 7.0	+19.0
31	+.086	+ .14	− 9.1	−12.6	+15.1
Feb. 20	+0.141	+0.21	− 9.3	−16.6	+ 9.5

TABLE VI (Continued).

Date.	τ	A'	B	C	D
'95, Mar. 12	+0.196	+0.25	—9.7	—18.6	+ 2.7
Apr. 1	.251	.30	9.4	18.3	— 4.3
21	.306	.34	9.3	16.0	10.8
May 11	+ .360	+ .40	—8.8	—11.8	—16.0
31	.415	.47	8.6	6.3	19.3
June 20	.470	.54	8.3	— 0.2	20.4
July 10	.525	.62	8.5	+ 6.0	19.4
30	.579	.69	8.6	11.5	16.2
Aug. 19	+ .634	+ .75	—9.0	+15.7	—11.2
Sept. 8	.689	.79	9.2	18.2	— 4.9
28	.744	.85	9.2	18.6	+ 2.1
Oct. 18	.798	.89	9.0	16.9	8.8
Nov. 7	.853	0.95	8.5	13.1	14.6
27	+ .908	+1.01	—8.2	+ 7.7	+18.6
Dec. 17	0.963	1.09	7.8	+ 1.3	20.4
96 Jan. 6	1.017	1.17	8.0	— 5.3	19.6
26	1.072	1.24	8.1	11.2	16.4
Feb. 15	1.127	1.30	8.5	15.8	11.1
Mar. 6	+1.182	+1.35	—8.6	—18.3	+ 4.5
26	1.236	1.39	8.7	18.6	— 2.5
Apr. 15	1.291	1.43	8.3	16.8	9.2
May 5	1.346	1.49	7.9	13.0	14.7
25	1.401	1.55	7.5	7.8	18.6
June 14	+1.456	+1.63	—7.2	— 1.8	—20.4
July 4	1.510	1.70	7.2	+ 4.4	19.9
24	1.565	1.78	7.3	10.1	17.2
Aug. 13	1.620	1.83	7.7	14.8	12.6
Sept. 2	1.675	1.89	7.8	17.8	— 6.6
22	+1.729	+1.93	—7.9	+18.7	+ 0.2

TABLE VII. DATA OF THE OBSERVATIONS FOR STARS 1, 2, 3.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C\, c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	+78^s.						
1	'93, Nov. 4.4	−27.40	−33.05	+ 887	−1058	+ 955	+14	0	+ 0	+114
2	6	4.28	4.28	893	165	124	14		0	114
3	9	2.75	4.28	825	106	124	+14		0	113
4	Dec. 3.3	33.05	27.40	1290	1276	792	− 7		0	106
5	10	27.40	30.96	986	1058	895	+ 7		0	104
6	17	4.28	4.28	1046	165	124	8		2	102
7	19.2	10.92	13.33	881	421	385	10		3	102
8	21	10.92	14.72	761	421	425	6		3	102
9	94 Jan. 7	− 2.77	− 2.77	+ 995	− 107	+ 80	+10	0	+ 7	+ 96
10	94 July 20.7	−21.84	−31.01	+ 810	− 843	+ 896	+ 9	0	+16	+45
11	21	27.45	41.59	1034	1060	1202	12		16	44
12	22	14.75	14.75	1139	569	426	10		16	44
13	26	−31.35	40.55	977	−1210	1172	9		14	43
14	27	+ 5.20	4.33	658	+ 201	125	7		14	42
15	28.6	−33.10	27.45	1452	−1278	792	9		14	42
16	29	10.95	14.75	938	423	426	10		13	42
17	Aug. 1	10.95	14.75	1101	423	426	10		12	41
18	2	25.33	27.45	1067	978	793	11		12	41
19	4	10.95	13.36	1177	423	386	15		11	40
20	6	10.95	14.75	1057	423	426	13		10	39
21	9	12.10	14.75	1085	467	426	12		9	39
22	11	−10.95	−14.75	+ 940	− 423	+ 426	+13	0	+ 9	+ 38
23	94 Dec. 2.3	−13.36	−16.22	+1038	− 516	+ 469	+15	+1	−13	+ 8
24	4	2.72	+ 0.04	1036	105	− 1	13	1	13	7
25	5	− 2.72	+ 0.04	+1062	− 105	− 1	+12	+1	−13	+ 7

PARALLAX AND RESULTS OF THEIR SOLUTION.

β CASSIOPEIAE.

No.	Da 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	$+78^s$.			^{s}							
1	+ 912	−1.15	−0.67	+1.08	+ 67	0.9	+30	10	7	3.5	
2	980	1.15	.70	+0.40	− 3	1.0	− 2	10	10	3	
3	970	1.14	.73	+0.50	+ 7	1.2	+ 4	11	10	5	
4	905	1.07	.95	+1.15	+ 64	0.9	+29	7	10	3	
5	933	1.06	0.98	+0.87	+ 35	1.2	+21	10	8	4	
6	1117	1.04	1.00	−0.97	−150	1.0	−75	10	10	3	
7	960	1.03	1.00	+0.60	+ 7	1.4	+ 5	14	12	5	
8	876	1.03	1.00	+1.44	+ 92	1.4	+64	14	11	5	
9	+1081	−0.98	−0.96	−0.61	−111	1.1	−61	11	11	3	
							+ 2				
10	+ 933	−0.45	+0.88	+0.87	+116	1.3	+76	13	8	4	4
11	1248	.44	.88	−2.28	−199	0.2	−20	10	2	4	2.5
12	1066	.44	.88	−0.46	− 17	1.3	−11	11	11	4.5	5
13	1005	.43	.84	+ .15	+ 43	0.2	+ 4	7	3	4.5	3
14	1047	.43	.82	− .27	0	1.2	0	15	10	4.5	3.5
15	1031	.43	.82	− .11	+ 16	0.9	+ 7	7	10	4.5	4.5
16	1006	.42	.80	+0.14	+ 41	1.3	+26	14	11	4	4
17	1167	.41	.78	−1.47	−121	1.2	−72	14	11	3.5	3
18	946	.41	.76	+0.74	+100	1.1	+55	11	10	4	3.5
19	1206	.41	.74	−1.86	−161	1.1	−88	14	12	3	2.5
20	1122	.40	.72	−1.02	− 78	1.2	−47	14	11	4	3
21	1104	.39	.69	−0.84	− 61	1.1	−34	13	11	2.5	3
22	+1003	−0.39	+0.66	+0.17	+ 39	1.3	+26	14	11	5	5
							− 6				
23	+1002	−0.08	−0.94	+0.18	− 18	1.2	−11	12	10	4	4
24	938	.07	.95	+0.82	+ 46	1.1	+26	11	13	3	3
25	+ 963	−0.07	−0.96	+0.57	+ 21	1.3	+14	11	13	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*							
26	'94, Dec. 13.3	−10.87	−10.87	+1129	− 420	+ 314	+12	+1	−11	+ 5
27	14	10.87	10.87	1058	420	314	12	1	11	4
28	17	10.87	14.67	952	420	424	12	1	11	3
29	19.2	10.87	14.67	906	420	424	12	1	10	3
30	25	−10.87	13.28	1029	− 420	384	12	1	9	+ 1
31	29	+ 0.04	2.72	879	+ 2	79	13	1	8	0
32	31	−10.87	14.67	1026	− 420	424	13	1	8	0
33	95 Jan. 1	10.87	21.76	786	420	629	14	1	7	0
34	2	−10.87	−13.28	+1059	− 420	+ 384	+14	+1	− 7	− 1
35	95 July 19.7	− 2.73	+ 0.03	+1316	− 105	− 1	−10	+1	+ 4	− 54
36	21	4.26	+ 0.03	1245	164	− 1	10	1	3	55
37	22	9.32	−10.88	1207	360	+ 314	10	1	3	55
38	24	10.88	13.29	1177	420	384	11	1	+ 2	55
39	29.6	10.88	13.29	1207	420	384	11	1	0	57
40	30	10.88	10.88	1229	420	314	9	1	0	57
41	31	10.88	12.03	1150	420	348	8	1	0	58
42	Aug. 3	−10.88	−14.68	+1026	− 420	+ 424	−10	+1	− 1	− 58
43	95 Nov. 23.3	−10.98	−19.66	+ 965	− 424	+ 568	−15	+2	−26	− 89
44	26	10.98	14.78	1075	424	427	15	2	26	90
45	29	10.98	13.39	1123	424	387	15	2	26	91
46	Dec. 4	10.98	10.98	1233	424	317	16	2	25	92
47	5	14.32	12.80	1226	553	370	16	2	25	92
48	8	9.42	10.98	1155	364	317	17	2	25	93
49	12	9.42	12.13	1216	364	351	17	2	25	94
50	15	10.98	13.39	1144	424	387	16	2	24	94
51	23.2	12.06	12.06	1209	466	347	16	2	23	97
52	26	−10.98	−13.39	+1286	− 424	+ 387	−14	+2	−22	− 97

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
26	+ 1030	—0.05	—0.99	—0.10	— 47	1.4	—33	14	14	4	4
27	958	.04	0.99	+0.62	+ 24	1.2	+14	14	14	3	3
28	961	.04	1.00	+0.59	+ 21	1.4	+14	14	11	5	5
29	916	.03	1.00	+1.04	+ 67	1.2	+40	14	11	4	3
30	998	— .01	1.00	+0.22	— 15	1.4	—10	14	12	4.5	4.5
31	966	.00	0.99	+ .54	+ 17	1.2	+10	13	11	4	4
32	1036	.00	.99	— .16	— 53	1.3	—34	14	11	4	4.5
33	1003	+ .01	.98	+ .17	— 19	1.1	—10	14	7	4.5	4.5
34	+1030	+0.01	—0 98	—0.10	— 46	1.4	—32	14	12	5	5
							— 1				
35	+1151	+0.55	+0.90	—1.31	— 86	1.1	—48	11	13	3.5	3.5
36	1019	.56	.88	+0.01	+ 45	1.1	+25	10	13	4	3.5
37	1100	.56	.88	— .80	— 35	1.4	—24	15	14	4.5	4
38	1078	.56	.85	— .58	— 15	1.3	—10	14	12	4.5	4
39	1104	.58	.81	— .84	— 41	1.2	—24	14	12	4.5	3
40	1058	.58	.80	— .38	+ 4	1.4	+ 3	14	14	5	4
41	1013	.58	.80	+ .07	+ 49	1.4	+34	14	13	5	5
42	+ 962	+0.59	+0.76	+0.58	+ 99	1.4	+70	14	11	5	5
							+ 3				
43	+ 981	+0.90	—0.87	+0.39	+ 21	1.3	+14	14	8	4	4
44	949	.91	.90	+ .71	+ 52	0.8	+21	14	11	2	0.5
45	956	.91	.92	+ .64	+ 44	1.4	+31	14	12	5	5
46	995	.93	.95	+0.25	+ 4	1.4	+ 3	14	14	4.5	4.5
47	912	.93	.96	+1.08	+ 87	1.1	+48	11	12	3	2.5
48	975	.94	.97	+0.45	+ 23	1.6	+18	15	14	5	5
49	1069	.95	.98	— .49	— 71	1.4	—50	15	13	4.5	4
50	975	.96	0.99	+ .45	+ 23	1.3	+15	14	12	4.5	4
51	956	.98	1.00	+ .64	+ 42	1.5	+32	13	13	5	5
52	+1118	+0.99	—1.00	—0.98	—120	1.4	—84	14	12	5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI *	$\Delta_1 C.c_1'$ *	$\Delta_2 C.c_2'$ *	$D\tan\delta.n$ *	Rate. *	Precess. and Nutat. *	Prop. Mot. *
53	'95, Dec. 27.2	−10.98	−10.98	+1210	−424	+317	−14	+ 2	−22	− 98
54	31	+11.44	0.07	671	+442	2	14	2	21	99
55	96 Jan. 6	− 0.62	10.98	842	− 24	317	10	2	20	101
56	8	+ 3.30	− 1.42	+1060	+127	+ 41	− 9	+ 2	−20	−102

1, 2, 3, 8. Telescope clamped. 3. Screen I on star 2. 6. Star 1, components not well separated.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	6.87	7.50	7.17	3
5th	7.38	7.36	6.96	5

Normal Equations.

$+86.44\,x + 13.58\,y - 31.93\,z + 8.60 = 0$

$+13.58\,x + 44.89\,y - 11.60\,z - 2.52 = 0$

$-31.93\,x - 11.60\,y + 71.99\,z - 25.69 = 0$

Star 1. Attention was fixed upon the principal component, except in observations 1, 2, 3, 4, 5, and 44, in which the center of light was observed; no corresponding correction was applied.

STARS 4, 5, 6.

		s	s	$+23s$						
1	93, Nov. 4.4	+ 0.01	+ 0.01	+.482	0	0	− 4	0	+ 1	+588
2	6	+ 0.01	+ 0.01	466	0	0	− 4		0	585
3	20.3	0.00	0.00	489	0	0	+ 1		0	566
4	29	−10.90	− 9.34	500	+ 48	− 18	2		− 1	553
5	Dec. 3	0.04	5.56	626	0	11	+ 2		2	548
6	10	11.56	5.09	579	51	10	− 2		2	538
7	17	− 6.63	− 5.09	633	+ 29	− 10	3		2	528
8	19	+ 5.46	+ 4.95	654	− 24	+ 9	3		3	526
9	21	−10.91	− 5.58	618	+ 48	− 11	2		3	523
10	94 Jan. 7	−10.80	−16.38	+ 714	+ 48	− 31	− 3	0	− 4	+499
11	94 July 22.7	− 1.77	− 1.77	+1015	+ 8	− 3	− 4	0	+ 3	+224
12	27	+ 5.43	0.32	1083	− 24	1	3		3	218
13	28	5.43	− 7.37	1067	− 24	− 14	3		3	217
14	29	+ 5.43	+ 5.43	+1107	− 24	+ 10	− 4	0	+ 3	+ 215

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
53	+ 971	+0.99	−1.00	+0.49	+ 27	1.4	+19	14	14	4.5	4.5
54	983	1.00	0.99	+ .37	+ 15	1.6	+12	20	13	4.5	5
55	1006	1.02	0.97	+ .14	− 6	1.6	− 5	18	14	5	5
56	+1099	+1.02	−0.96	−0.79	−104	1.2	−62	15	12	3	3
							+ 1				

11. Light clouds. 13. Clouds. Reject? 37. Light clouds. 44. Star 1 not separated; center of light observed. Star 2, image very diffuse, even with screen II. 56. Daylight illumination. Star 3, ff.

Assumed $D\alpha$ 1895.0 $= +79^s.020$ $\quad d.D\alpha = +0^s.0021$ $\quad p_z = 59.18$

$x = + 0.021$ $\quad d.D\mu = +0.0152$ $\quad [pnn.3] = 0.3145$

$y = + 0.152$ $\quad [pvv] = 0.3148$

$z = + 0.390$ $\quad \pi = +0''.17 \pm 0''.029$ $\quad r = \pm 0^s.026$

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	+24^s			^{s}							
1	+ 067	−1.15	−0.64	+1.63	+ 91	1.4	+64	13	13	4.5	
2	047	1.15	.67	+1.83	+110	1.2	+66	13	13	3	
3	056	1.11	.83	+1.74	+ 89	1.1	+48	11	11	3	
4	084	1.09	.91	+1.46	+ 56	1.0	+28	14	15	2	
5	163	1.07	.93	+0.67	− 25	1.5	−19	19	22	3.5	
6	154	1.06	.97	+ .76	− 16	1.7	−14	20	24	4.5	
7	175	1.04	0.99	+ .55	− 40	1.8	−36	23	24	4	
8	159	1.03	1.00	+ .71	− 25	1.8	−22	22	21	4.5	
9	173	1.03	1.00	+ .57	− 39	1.8	−35	19	22	5	
10	+ 223	−0.98	−0.97	+0.07	− 86	1.3	−56	13	16	3.5	
							+ 2				
11	+ 243	−0.44	+0.89	−0.13	+ 46	1.8	+42	18	18	5	5
12	276	.43	.85	− .46	+ 11	1.5	+ 8	22	18	4.5	3.5
13	246	.43	.84	− .16	+ 40	1.5	+30	22	15	4	4
14	+ 307	−0.42	+0.83	−0.77	− 12	1.7	−10	22	22	4	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
15	94, Aug. 1.7	− 0.09	− 0.09	+1004	0	0	− 3	0	+ 3	+211
16	2	+ 5.43	− 0.09	1048	− 24	0	4		3	210
17	4	+ 5.43	+ 5.43	1070	− 24	+ 10	4		3	207
18	6	− 0.09	− 0.09	1100	0	0	4		3	204
19	9	+ 4.86	7.27	1119	− 21	− 14	4		3	200
20	11	− 7.37	−12.90	+1021	+ 32	− 25	− 4	0	+ 3	+198
21	94 Dec. 2.3	+ 4.53	+ 1.83	+1170	− 20	+ 3	− 4	0	− 4	+ 40
22	4	5.51	5.51	1210	24	10	4		4	37
23	5	5.51	1.91	1138	24	4	4		4	36
24	13	5.51	5.51	1191	24	10	4		5	25
25	14	5.51	5.51	1182	24	10	4		5	23
26	17	5.51	+ 5.51	1173	24	+ 11	4		5	19
27	19	5.51	−12.69	1286	24	− 24	4		5	+ 16
28	31	5.51	+ 5.51	1192	24	+ 10	4		5	0
29	95 Jan. 1	4.61	− 0.01	1291	20	0	4		5	− 2
30	2	+ 5.51	+ 5.51	+1122	− 24	+ 11	− 4	0	− 6	− 4
31	95 July 21.7	− 0.02	−12.70	+1616	0	− 24	+ 3	0	+ 1	−283
32	22	29.07	29.07	1567	+128	55	3		1	284
33	24	8.98	14.54	1672	40	28	3		1	287
34	28	12.83	12.83	1665	56	24	3		1	292
35	29	− 1.79	−12.83	1718	+ 8	−24	3		1	294
36	30	+ 5.50	+ 1.90	1557	−24	+ 4	2		1	295
37	31	5.50	1.90	1634	24	4	2		1	296
38	Aug. 3	5.50	5.50	1619	24	10	3		1	301
39	6	+ 5.50	+ 3.74	+1621	−24	+ 7	+ 3	0	+ 1	−305
40	95 Nov. 23.3	+ 3.83	− 0.12	+1626	−17	0	+ 5	0	− 6	−457
41	26	5.40	+ 5.40	1614	24	+10	5		6	462
42	29	+ 5.40	+ 5.40	+1651	−24	+10	+ 5	0	− 6	−464

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p_1}'$ *	m_1	m_2	Images.	
15	+ 215	−0.41	+0.80	+0.15	+ 69	1.5	+52	19	19	4	3
16	233	.41	.79	− .03	+ 50	1.6	+40	22	19	4	3
17	262	.41	.77	− .32	+ 20	1.8	+18	22	22	4.5	4.5
18	303	.41	.76	− .73	− 22	1.8	−20	25	25	4	4
19	283	.39	.72	− .53	− 5	1.0	− 5	18	18	3	2
20	+ 225	−0.39	+0.68	+0.05	+ 50	1.6	+40	15	18	5	5
							+20				
21	+ 185	−0.08	−0.93	+0.45	− 24	1.2	−14	21	20	2.5	2
22	225	.07	.94	+ .05	− 64	1.5	−48	22	22	4	3
23	146	.07	.95	+ .84	+ 14	1.8	+12	22	20	5	5
24	193	.05	.98	+ .37	− 34	1.7	−29	22	22	4	4
25	182	.04	.99	+ .48	− 24	1.3	−16	22	22	3	2
26	170	.04	0.99	+ .60	− 12	1.6	−10	22	22	4.5	4.5
27	245	− .03	1.00	− .15	− 88	1.1	−48	22	11	2.5	2.5
28	169	.00	0.99	+ .61	− 10	1.6	− 8	22	22	4	4
29	260	+ .01	.99	−0.30	−101	1.7	−86	21	19	4.5	4.5
30	+ 095	+0.01	−0.99	+1.35	+ 64	1.9	+61	22	22	5	5
							−19				
31	+ 313	+0.56	+0.90	−0.83	0	1.3	0	19	12	4	3
32	360	.56	.89	−1.30	− 47	1.0	−24	9	9	4	3
33	401	.56	.87	−1.71	− 90	1.3	−58	14	17	4	3
34	409	.57	.84	−1.79	−100	1.5	−75	18	18	4	3
35	412	.58	.83	−1.82	−104	1.5	−78	24	18	3	3
36	245	.58	.83	−0.15	+ 62	0.8	+25	22	20	5	4
37	321	.58	.82	− .91	− 13	1.6	−10	22	20	5	4
38	308	.59	.79	− .78	− 3	1.8	− 3	22	22	5	5
39	+ 303	+0.60	+0.76	−0.73	+ 1	1.6	+ 1	22	21	4	4
							−25				
40	+ 151	+0.90	−0.85	+0.79	+ 39	1.0	+20	21	19	3	1
41	137	.91	.88	+ .93	+ 51	1.5	+38	22	22	2.5	3
42	+ 172	+0.91	−0.91	+0.58	+ 14	1.9	+14	22	22	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
43	'95, Dec. 4.3	+5.40	+ 5.40	+1665	−24	+10	+ 5	0	− 6	− 473
44	5	5.40	1.80	1630	24	3	4		6	474
45	8	+ 5.40	+ 5.40	1620	−24	+10	5		7	479
46	12	− 1.89	− 5.64	1636	+ 8	−11	5		7	484
47	15	+ 5.40	+ 5.40	1743	−24	+10	5		7	488
48	23.2	5.40	5.40	1668	24	10	5		7	499
49	26	5.40	5.40	1650	24	10	4		7	503
50	27	5.40	+ 5.40	1707	24	+10	4		8	505
51	31	+ 5.40	− 0.12	1804	−24	0	4		8	511
52	96 Jan. 6	− 5.64	7.06	1673	+25	−13	3		8	519
53	8	− 7.40	−12.93	+1732	+33	−25	+ 3	0	− 8	−522

7. Star 5, one thread rejected, in accordance with note. 9. Telescope clamped. 10. Daylight illumination. 19. Images breaking frequently. 26. Image of star 6 breaking on groups E and F.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.01	8.10	7.84	7
5th	6.98	8.00	7.75	8

Normal Equations.

$+127.34\,x + 11.47\,y - 45.04\,z + 27.11 = 0$

$+ 11.47\,x + 70.06\,y - 12.39\,z - 7.26 = 0$

$- 45.04\,x - 12.39\,y + 105.54\,z - 74.40 = 0$

STARS 7, 8, 9.

		s	*s*	+40*s*						
1	'93, Nov. 4.4	0.00	0.00	+1088	0	0	+ 5	0	+ 1	+239
2	6	+0.41	0.00	937	− 5	0	+ 5		+ 1	239
3	29.3	−7.32	− 7.32	1014	+ 94	− 76	− 3		− 2	225
4	Dec. 3	−5.56	18.28	1095	+ 72	190	− 3		2	223
5	10	+1.84	− 0.16	+1039	− 24	− 2	+ 3	0	− 3	+220

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
43	+ 177	+0.93	−0.94	+0.53	+ 7	1.6	+ 6	22	22	3.5	3.5
44	133	.93	.95	+0.97	+ 50	1.8	+45	22	20	4.5	5
45	125	.94	.96	+1.05	+ 58	1.9	+55	22	22	5	5
46	147	.95	.98	+0.83	+ 34	1.4	+24	24	22	3.5	2.5
47	239	.96	0.99	−0.09	− 58	1.4	−40	22	22	3.5	2.5
48	153	.98	1.00	+0.77	+ 28	1.9	+26	22	22	4	4.5
49	130	.99	1.00	+1.00	+ 51	1.7	+44	22	22	4.5	4
50	184	0.99	1.00	+0.46	− 3	1.9	− 3	22	22	5	5
51	265	1.00	0.99	− .35	− 83	1.5	−62	22	19	4	3
52	161	1.02	.97	+ .69	+ 23	1.8	+20	22	21	5	5
53	+ 213	+1.02	−0.97	+0.17	− 29	1.3	−19	15	18	4	3
							+12				

27. Star 5, ff. 36. Image of star 5 diffuse at times so as to be almost invisible. 40. Images breaking frequently. 51. Images breaking at times.

Assumed $D\alpha$ 1895.0 $= +24^s.230$ $\quad d.D\alpha = +0^s.003$ $\quad p_z = 88.61$

$x = +0.029$ $\quad d.D\mu = +0.023 \pm 0^s.0065$ $\quad [pnn.3] = 0.3129$

$y = +0.231$ $\quad [pvv] = 0.3116$

$z = +0.745$ $\quad \pi = +0''.44 \pm 0''.034$ $\quad r = \pm 0^s.027$

	Obs. 1−30	Obs. 21−53
$d.D\alpha$	$+0^s.004$	$+0^s.042$
$d.D\mu$	+0.043	−0.013
π	$+0''.30 \pm 0''.042$	$+0''.57 \pm 0''.044$
r	$\pm 0^s.025$	$\pm 0^s.025$

Stars 4 and 5. $d\Delta\mu = +0^s.012$, $\pi = +0''.49 \pm 0''.041$, $r_1 = \pm 0''.18$; 53 obs.

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	$+41^s$			^{s}						
1	+ 333	−1.15	−0.56	−0.68	−118	1.1	−65	11	11	2.5
2	177	1.15	.59	+ .88	+ 39	0.6	+12	10	11	0.5
3	252	1.09	.86	+ .13	− 33	1.2	−20	15	15	2.5
4	195	1.07	.90	+ .70	+ 26	1.1	+14	22	15	1
5	+ 233	−1.06	−0.94	+0.32	− 13	1.4	− 9	20	17	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
6	'93, Dec. 17.3	+ 5.44	− 5.34	+1081	− 70	− 55	+ 3	0	− 3	+216
7	19	5.46	0.06	1070	71	1	4		3	214
8	94 Jan. 6.2	5.46	1.74	1012	71	18	3		4	204
9	7	+ 5.46	− 1.74	+1041	− 71	− 18	+ 4	0	− 4	+203
10	94 July 27.7	+ 4.92	− 3.53	+1246	− 63	− 37	+ 3	0	+ 9	+ 89
11	28	− 0.09	10.83	1162	+ 1	113	3		9	89
12	Aug. 2	0.09	7.37	1326	+ 1	77	4		9	86
13	6.6	− 1.64	11.71	1286	+ 21	122	5		9	84
14	11	+ 5.43	12.77	1444	− 70	132	4		8	81
15	16	− 5.75	−21.60	+1347	+ 74	−225	+ 4	0	+ 8	+ 78
16	94 Dec. 2.3	+ 5.43	− 1.77	+1353	− 70	− 18	+ 6	+1	0	+ 16
17	4	−12.82	12.82	1046	+167	133	5	1	0	15
18	5	+ 5.51	0.01	1345	− 72	0	5	1	0	14
19	13	5.58	0.01	1404	73	0	4	0	− 1	10
20	14	5.51	7.29	1345	72	76	4	1	1	9
21	17	+ 5.51	3.45	1393	− 72	36	5	1	1	8
22	19	−21.52	12.82	1041	+280	133	5	1	2	6
23	25	+ 5.51	3.45	1381	− 71	36	5	0	2	+ 2
24	31.2	−21.52	12.82	1117	+280	133	5	1	2	0
25	95 Jan. 1	− 7.29	7.29	1212	+ 95	76	5	1	2	− 1
26	2	+ 5.51	0.01	1337	− 72	0	5	1	2	2
27	8	+ 5.63	− 5.19	+1453	− 73	− 54	+ 6	+0	− 3	− 5
28	95 July 24.7	− 6.84	−33.03	+1529	+ 89	−344	− 4	0	+10	−117
29	29	+ 5.50	7.30	1564	− 72	− 76	4	0	10	119
30	30	5.50	0.02	1466	72	0	4	0	10	120
31	Aug. 6.6	+ 5.50	− 0.02	+1465	− 72	0	− 4	+ 1	+10	−124

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
6	+ 172	−1.04	−0.98	+0.93	+ 50	1.0	+25	22	16	0.5	
7	213	1.03	.98	+0.52	+ 9	1.5	+ 6	22	19	2.5	
8	126	0.98	.99	+1.39	+ 99	1.2	+59	22	18	2	
9	+ 155	−0.98	−0.99	+1.10	+ 69	1.2	+42	22	18	2	
							+ 7				
10	+ 247	−0.43	+0.89	+0.18	− 1	1.5	0	21	17	3	3
11	151	.43	.88	+1.14	+ 94	1.6	+75	19	13	5	5
12	349	.41	.84	−0.84	−102	1.1	−56	19	15	2.5	2
13	283	.40	.81	− .18	− 35	1.0	−18	17	11	2	1
14	335	.39	.75	− .70	− 86	1.3	−56	22	12	3.5	3.5
15	+ 286	−0.37	+0.69	−0.21	− 37	1.7	−32	20	13	4.5	4.5
							−14				
16	+ 288	−0.08	−0.88	−0.23	− 23	1.5	−18	22	18	3	3
17	101	.07	.90	+1.64	+165	1.0	+82	18	18	2	0.5
18	293	.07	.91	−0.28	− 26	1.5	−20	22	19	3.5	3
19	344	.05	.96	− .79	− 75	1.5	−56	21	19	2.5	3
20	210	.04	.96	+ .55	+ 58	1.0	+29	22	15	2	0.5
21	298	.04	.97	− .33	− 31	1.6	−26	22	17	4.5	4.5
22	198	.03	0.98	+ .67	+ 71	1.0	+36	13	18	3	0.5
23	279	− .01	1.00	− .14	− 10	1.5	− 8	22	17	3.5	3.5
24	268	.00	1.00	− .03	+ 2	1.3	+ 1	13	18	2.5	2.5
25	235	+ .01	1.00	+ .30	+ 34	1.3	+22	15	15	3.5	3.5
26	267	.01	1.00	− .02	+ 3	1.8	+ 2	22	19	5	5
27	+ 324	+0.02	−0.99	−0.59	− 54	1.1	−30	22	16	3	1
							+ 1				
28	+ 163	+0.56	+0.91	+1.02	+129	0.6	+38	19	7	4	3
29	303	.58	.88	−0.38	− 11	1.5	− 8	22	15	3.5	3
30	280	.58	.87	− .15	+ 13	1.6	+12	22	19	4.5	3
31	+ 276	+0.60	+0.81	−0.11	+ 17	1.6	+14	22	19	4	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	$D1$	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
32	'95, Aug. 11.6	+ 5.50	− 3.46	+1537	− 72	− 36	− 5	0	+10	−127
33	12	− 0.02	−16.34	+1497	0	−170	− 3	0	+10	−128
34	95 Nov. 20.3	− 9.12	−12.93	+1451	+119	−134	− 5	+1	+ 3	−185
35	23	+ 5.40	0.12	1620	− 70	1	6	1	2	187
36	26	5.40	0.12	1542	70	1	6	1	2	188
37	Dec. 4	5.40	1.80	1644	70	19	6	1	1	193
38	8	5.40	5.42	1636	70	56	6	1	+ 1	195
39	12	5.40	12.80	1721	70	132	7	2	0	197
40	15	5.40	3.56	1690	70	37	6	1	0	199
41	23	5.40	0.12	1634	70	1	6	1	0	203
42	26	+ 5.40	0.12	1565	− 70	1	5	1	0	205
43	27	− 7.34	12.93	1574	+ 95	134	5	1	0	206
44	96 Jan. 6.2	+ 5.40	− 0.12	+1571	− 70	− 1	− 4	+2	− 1	−211

6. Images of stars faint and diffuse; clouds and moonlight. 11. Stars 7 and 9, f. 13. Through clouds.

Epoch.	Estimates of Magnitudes.			No. of Ests.
4th	8.04	5.84	7.70	5
5th	7.87	5.73	7.72	6

Normal Equations.

$+80.14\,x + 9.79\,y - 34.41\,z - 7.12 = 0$

$+ 9.79\,x + 39.83\,y - 5.61\,z - 18.71 = 0$

$-34.41\,x - 5.61\,y + 65.44\,z + 4.65 = 0$

STARS 10, 11, 12.

				$+99s$						
1	'93, Nov. 20.4	+ 0.01	+ 0.01	+1745	0	0	+ 6	0	− 4	+299
2	Dec. 19.3	5.00	−10.92	1348	+ 64	+515	−40		26	278
3	94 Jan. 6.2	+ 7.25	12.07	1288	+ 92	570	23		42	265
4	7	−11.58	29.11	830	−153	1374	36		41	264
5	10	+ 5.00	−13.33	+1241	+ 64	+629	−22	0	−44	+262

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TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
32	+ 307	+0.61	+0.75	−0.42	− 12	1.6	−10	22	17	3	3
33	+ 206	+0.61	+0.74	+0.59	+ 88	1.1	+48	25	16	2.5	1.5
							+16				
34	+ 250	+0.89	−0.77	+0.15	+ 59	1.7	+50	20	18	4.5	4.5
35	359	.90	.80	− .94	− 50	1.4	−36	22	19	3.5	2.5
36	280	.91	.83	− .15	+ 32	1.2	+20	22	19	3.5	2
37	358	.93	.90	− .93	− 46	1.4	−32	22	18	4	2.5
38	311	.94	.93	− .46	+ 2	1.5	+ 2	22	16	5	3
39	317	.95	.95	−0.52	− 4	1.3	− 2	22	12	4	2.5
40	379	.96	.97	−1.14	− 65	1.2	−39	22	17	3.5	2
41	355	.98	0.99	−0.90	− 41	1.5	−31	22	19	5	3
42	285	.99	1.00	− .20	+ 31	1.4	+22	22	19	4	2.5
43	325	0.99	1.00	− .60	− 10	1.5	− 8	21	18	4.5	3
44	+ 286	+1.02	−0.99	−0.21	+ 29	1.5	+22	22	19	4.5	3
							− 3				

15. Stars 7 and 9, f. 21. Star 8 appears elongated at 135°. 22. Star 7, f. 28. Stars 7 and 9, ff; daylight illumination. 39. Through clouds; est'd mags.: 7.9, 6.2 to 7.5, 8.2.

Assumed $D\alpha$ 1895.0 $= +41^s.265$ $d.D\alpha = +0^s.002$ $p_z = 50.61$

$x = +0.024$ $d.D\mu = +0.046$ $[pnn.3] = 0.2079$

$y = +0.461$ $[pvv\ ] = 0.2112$

$z = -0.019$ $\pi = -0''.01 \pm 0''.050$ $r = \pm 0^s.024$

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	+100s										
1	+1046	−1.11	−0.74	+1.04	+ 90	1.2	+54	13	13	3	
2	1139	1.03	0.97	+0.11	− 1	1.5	− 1	24	14	4	
3	1150	0.98	1.00	.00	− 12	0.8	− 5	15	13	1	
4	1238	0.98	0.99	− .88	− 99	1.2	−59	20	9	3	
5	+1130	−0.97	−0.98	+0.20	+ 8	1.4	+ 6	24	12	3.5	
							− 1				

12 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
6	'94, July 27.7	+ 5.43	−17.68	+1336	+ 69	+834	−27	0	+8	+116
7	Aug. 1	− 0.09	28.53	650	− 1	1347	32		10	112
8	2	+ 5.43	12.77	1476	+ 69	603	40		10	111
9	16.6	11.47	0.04	1912	146	2	40		15	101
10	17	4.97	10.95	1294	64	517	36		15	100
11	20	+11.47	− 0.04	+1823	+145	+ 2	−38	0	+16	+ 98
12	94 Dec. 4.3	+ 5.05	−10.87	+1502	+ 64	+513	−44	0	−19	+ 19
13	5	5.05	10.87	1678	64	513	44		20	19
14	14	+ 5.05	13.28	1416	+ 64	627	40		27	12
15	19	−27.37	25.25	1369	−348	1192	42		31	8
16	25	+11.55	7.38	1828	+147	348	44		36	5
17	29	0.00	−10.87	1776	0	+513	43		39	+ 1
18	95 Jan. 2.2	11.55	+ 0.04	2111	147	− 2	46		42	− 1
19	10	+11.67	+ 0.16	+2033	+148	− 8	−52	0	−48	− 8
20	95 July 29.7	+11.54	+ 0.03	+2070	+147	− 1	+34	0	+ 5	−156
21	31	12.36	3.40	2204	160	158	27		6	157
22	Aug. 3	11.54	+ 3.40	2311	147	−160	32		8	160
23	11.6	11.54	− 1.69	2079	147	+ 80	37		10	166
24	14	+11.54	+ 0.03	+2081	+147	− 1	+27	0	+11	−168
25	95 Nov. 23.4	+11.44	−10.98	+1794	+145	+518	+47	0	−14	−242
26	Dec. 4.3	11.44	+ 3.30	2325	145	−156	50		21	251
27	8	11.44	+ 3.30	2400	145	−156	53		24	254
28	23	11.44	− 0.07	2308	145	+ 3	46		38	264
29	26	11.44	+ 3.30	2414	145	−156	44		41	266
30	27	+11.44	+ 4.97	+2400	+145	−235	+44	0	−42	−267

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
6	+1336	−0.43	+0.91	−1.86	−207	0.5	−52	22	9	5	5
7	1086	.41	.88	+0.64	+ 43	0.7	+15	19	3	3.5	3
8	1229	.41	.87	−0.79	− 99	1.5	−74	22	12	4.5	4.5
9	1136	.37	.73	+0.14	− 7	1.7	− 6	20	13	5	5
10	954	.37	.72	+1.96	+176	1.0	+88	24	14	4	3
11	+1046	−0.36	+0.68	+1.04	+ 84	1.0	+42	20	13	5	5
							+ 2				
12	+1035	−0.07	−0.88	+1.15	+104	1.5	+78	24	14	3	3
13	1210	.07	.89	−0.60	− 72	1.8	−65	24	14	5	5
14	1052	.04	.95	+ .98	+ 88	1.5	+66	24	12	3	3
15	1148	.03	.97	+ .02	− 9	1.3	− 6	10	11	4	3.5
16	1248	− .01	0.99	− .98	−108	1.2	−65	20	7	4.5	4.5
17	1208	.00	1.00	− .58	− 69	1.4	−45	21	14	4	3
18	1167	+ .01	1.00	− .17	− 27	1.7	−23	20	13	5	5
19	+1065	+0.03	−0.98	+0.85	+ 74	1.7	+63	20	13	5	5
							0				
20	+1099	+0.58	+0.90	+0.51	+ 33	1.6	+26	20	13	4.5	4
21	1082	.58	.90	+ .68	+ 48	1.6	+38	19	15	5	4
22	1178	.59	.87	− .28	− 46	1.7	−39	20	15	5	5
23	1187	.61	.79	− .37	− 56	1.6	−45	20	14	5	4
24	+1097	+0.62	+0.76	+0.53	+ 35	1.7	+30	20	13	4.5	4.5
							+ 2				
25	+1248	+0.90	−0.77	−0.98	−109	1.6	−87	20	14	4	4
26	1092	.93	.88	+ .58	+ 48	1.8	+43	20	15	4.5	4.5
27	1164	.94	.91	− .14	− 24	1.8	−23	20	15	5	5
28	1200	.98	0.99	− .50	− 59	1.5	−44	20	13	5	3.5
29	1140	.99	1.00	+0.10	0	1.7	0	20	15	4.5	4
30	+1045	+0.99	−1.00	+1.05	+ 96	1.7	+82	20	16	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT *	$\Delta_1 C.c_1'$ *	$\Delta_2 C.c_2'$ *	$D\tan\delta.n$ *	Rate. *	Precess. and Nutat. *	Prop. Mot. *
		s	*s*							
31	'95, Dec. 31.3	+11.44	— 0.07	+2242	+145	+ 3	+44	0	—45	—270
32	96 Jan. 6.2	+11.44	— 0.40	+2285	+145	+ 19	+33	0	—49	—274

5. Lamp illumination, but F and G threads very dim.

6. Daylight illumination; star 12, f.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	8.06	6.22	8.26	5
5th	7.92	5.90	8.03	5

Normal Equations.

$+69.56\,x + 17.88\,y - 28.12\,z + 9.09 = 0$

$+17.88\,x + 34.51\,y - 7.91\,z + 1.85 = 0$

$-28.12\,x - 7.91\,y + 57.69\,z - 1.33 = 0$

STARS 13, 14, 15.

				+30*s*					
1	'94, Dec. 2.3	+ 0.08	—12.90	+757	0	—28	—13	0	— 8
2	95 Jan. 1	— 0.01	+18.23	703	0	+40	12	+1	10
3	8.2	+ 0.11	18.35	812	— 1	40	14	0	10
4	13	—12.70	+12.79	+633	+60	+28	—14	0	—10
5	95 July 30.7	— 0.02	+14.65	+795	0	+32	+ 9	0	— 2
6	Aug. 6	0.02	7.48	815	0	16	9	0	2
7	12.6	— 0.02	+18.22	+782	0	+40	+10	0	— 2
8	95 Nov. 20.3	— 7.34	+16.25	+778	+34	+36	+10	+1	— 6
9	Dec. 5	0.12	18.12	708	1	40	13	1	7
10	15	7.34	16.39	744	34	36	14	1	8
11	96 Jan. 8.2	1.38	17.26	871	6	38	9	1	9
12	12	— 9.21	+12.56	+828	+43	+28	+ 8	+1	— 9

For notes and estimated magnitudes see solution next following.

Normal Equations.

$+26.91\,x + 15.12\,y - 10.76\,z + 2.46 = 0$

$+15.12\,x + 12.69\,y - 5.24\,z - 3.40 = 0$

$-10.76\,x - 5.24\,y + 22.02\,z - 5.89 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
31	+1119	+1.00	−1.00	+0.31	+ 21	1.5	+16	20	13	4.5	3.5
32	+1159	+1.02	−1.00	−0.09	− 17	1.6	−14	20	12	5	5
							− 3				

9. Star 10, f. 10. Star 12, ff. 11. Stars 10 and 12, ff. 14. Star 10, f. 15. Stars 10 and 12, f.

Assumed $D\alpha$ 1895.0 = $+101^s.150$ $d.D\alpha = -0^s.016$ $p_z = 46.30$

$x = -0.155$ $d.D\mu = +0.002$ $[pnn.3] = 0.3032$

$y = +0.015$ $[pvv] = 0.3008$

$z = -0.050$ $\pi = -0''.02 \pm 0''.044$ $r = \pm 0^s.035$

Stars 10 and 11. $d.D\mu = -0^s.003$, $\pi = -0''.03 \pm 0''.034$, $r_1 = \pm 0''.14$; 36 obs.

MAYER 20.

	+30^s			s							
1	+708	−0.08	−0.87	+1.02	+ 11	1.3	+ 7	24	18	2.5	2 5
2	722	+ .01	1.00	+0.88	+ 4	1.8	+ 4	25	15	4.5	4.5
3	827	.02	0.99	−0.17	− 99	1.1	−54	25	15	2	1
4	+697	+0.04	−0.97	+1.13	+ 33	1.4	+23	18	12	3	2.5
							− 5				
5	+834	+0.58	+0.90	−0.24	− 1	1.7	− 1	25	15	5	4
6	838	.60	.84	− .28	− 5	1.6	− 4	25	9	3.5	3
7	+830	+0.61	+0.78	−0.20	+ 3	1.6	+ 2	25	15	4	3
							− 1				
8	+863	+0.89	−0.73	−0.53	− 34	1.5	−26	21	14	3	3
9	756	.93	.89	+0.54	+ 74	1.9	+70	25	15	5	5
10	822	0.96	.96	−0.12	+ 9	1.5	+ 6	21	14	3.5	3
11	916	1.02	.99	−1.06	− 79	1.3	−52	24	14	3	2
12	+899	+1.04	−0.98	−0.89	+ 60	1.0	+30	18	12	2	0.5
							+ 6				

Assumed $D\alpha$ 1895.0 = +30.810 $d.D\alpha = -0.062$ $p_z = 17.56$

$x = -0.616$ $d.D\mu = +0.110$ $[pnn.3] = .0510$

$y = +1.097$ $[pvv] = .0504$

$z = +0.227$ $\pi = +0''.18 \pm 0''.098$ $r = \pm 0^s.025$

The correction for proper motion was omitted in this solution. The entire amount is contained, therefore, in $d.D\mu$.

TABLE VII (Continued).

STARS 13, 14, 16.

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*	−22*s*						
1	'93, Nov. 4.4	− 0.01	− 0.01	−1234	0	0	−14	0	− 5	+115
2	Dec. 10.3	0.04	0.04	1068	0	0	7		5	105
3	94 Jan. 8.2	− 9.02	− 7.34	−1203	+42	−16	− 9	0	− 7	+ 97
4	94 July 29.7	− 5.05	− 5.05	− 849	+24	−11	−11	0	− 8	+ 42
5	Aug. 4	16.87	16.87	1012	79	37	13		8	41
6	6	1.18	1.18	907	6	3	12		8	40
7	11	0.09	0.09	935	0	0	12		7	39
8	21.6	−19.92	− 0.69	−1108	+94	− 2	−11	0	− 6	+ 36
9	94 Dec. 2.3	+ 0.08	−21.60	− 947	0	−48	−14	0	− 3	+ 8
10	13	− .61	0.61	920	+ 3	1	11		4	+ 5
11	31	.01	0.01	940	0	0	12		4	0
12	95 Jan. 1	− .01	3.61	957	0	8	12		4	0
13	8.2	+ 0.11	1.66	881	− 1	4	16		5	− 2
14	13	−12.70	− 5.41	− 958	+60	−12	−15	0	− 5	− 4
15	95 July 30.7	− 0.02	− 3.62	− 872	+ 1	− 8	+ 7	0	− 6	− 58
16	Aug. 6	.02	3.62	820	1	8	9		6	60
17	12.6	− 0.02	− 1.79	− 868	+ 1	− 4	+ 7	0	− 5	− 61
18	95 Nov. 20.3	− 7.34	− 1.89	− 895	+34	− 4	+10	−1	0	− 89
19	Dec. 5	0.12	3.72	987	1	8	13	0	0	93
20	15	− 7.34	− 1.89	− 912	+34	− 4	+14	−1	− 1	− 96

TABLE VII (Continued).

MAYER 20.

No.	Da 1895.0	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.
	-22^s									
1	—1088	—1.15	—0.53	+1.08	+ 98	1.0	+49	11	11	3.5
2	975	1.06	.93	—0.05	— 28	1.8	—25	25	25	4
3	—1096	—0.98	—0.99	+1.16	+ 91	1.6	+73	14	15	5
							+32			
4	— 813	—0.42	+0.90	—1.67	—112	0.5	—28	18	18	3 2
5	908	.41	.85	—0.72	— 19	1.3	—12	14	14	3.5 3
6	884	.40	.84	— .96	— 43	1.4	—30	24	24	2.5 2.5
7	915	.30	.79	— .65	— 14	1.7	—12	25	25	3 3
8	— 997	—0.36	+0.67	+0.17	+ 65	1.4	+46	14	24	4 4
							— 7			
9	—1004	—0.08	—0.87	+0.24	+ 17	1.3	+11	24	13	2.5 2.5
10	928	— .05	0.95	— .52	— 62	1.6	—50	24	24	2.5 3
11	956	.00	1.00	— .24	— 35	1.5	—26	25	25	4 3
12	981	+ .01	1.00	+ .01	— 10	1.8	— 9	25	23	4.5 4.5
13	909	.02	0.99	— .71	— 82	1.1	—45	25	24	2 1
14	— 934	+0.04	—0.97	—0.46	— 55	1.4	—38	18	22	3 2.5
							—26			
15	— 936	+0.58	+0.90	—0.44	+ 25	1.7	+22	25	23	5 4
16	884	.60	.84	— .96	— 29	1.6	—23	25	23	3.5 3
17	— 930	+0.61	+0.78	—0.50	+ 16	1.6	+13	25	24	4 3
							+ 4			
18	— 945	+0.89	—0·73	—0.35	— 23	1.5	—18	21	24	3 3
19	1074	.93	.89	+ .94	+100	1.9	+95	25	23	5 5
20	— 936	+0.96	—0.96	—0.14	— 9	1.5	— 6	21	24	3.5 3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$_2C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
21	'96, Jan. 8.2	− 1.38	− 3.28	− 846	+ 6	− 7	+ 9	−1	− 2	−103
22	12	− 9.21	− 3.88	− 892	+43	− 9	+ 7	0	− 2	−104
	Rejected Observation.									
23	94 Dec. 17.3	− 0.01	− 0.01	−1101	0	0	−12	0	− 4	+ 4

1. Star 14 not observed through screen; corrrection of +0s.050 applied to DT in consequence. 3. Illumination very dim; lamps low. 4. Star 14, image very diffuse and disappearing frequently; transit much broken; star 13, ff; clouds near.

1894, Dec. 17.3. Sudden change in the condition of the images, for the worse, between the transits of stars 14 and 16—from 4.5-4.5 to 2.5-2.5. This observation compared with that of '94, Dec. 13.3 shows a change of —0s.078 as regards the difference between the reduced transit times of stars 13 and 14, and a similar change of +0s.105 as regards stars 14 and 16. There was some uncertainty whether the screen was employed; if not, each of these differences would be diminished by 0s 05.

Epoch.	Estimated Magnitudes.				No. of Ests.
4th	7.93	8.23	8.13	6.27	3
5th	7.95	8.30	8.15	6.35	2

Normal Equations.

$+47.27\,x + 4.51\,y - 14.57\,z - 7.89 = 0$

$+ 4.51\,x + 21.45\,y - 1.54\,z - 3.73 = 0$

$-14.57\,x - 1.54\,y + 37.60\,z - 9.99 = 0$

STARS 17, 18, 19.

		s	s	+27s						
1	'93, Nov. 20.4	+0.01	+ 0.01	+1898	0	0	+ 3	0	− 6	+857
2	29.3	+ .01	− 6.45	882	0	− 62	18		10	838
3	Dec. 3	− .03	23.39	1024	+ 1	224	+20		12	830
4	10	.03	3.13	955	1	30	−18		16	815
5	19	.06	0.05	952	2	0	28		21	796
6	94 Jan. 6	0.05	0.05	1024	2	0	18		30	757
7	7.2	−8.23	11.58	766	+286	1.1	27		31	755
8	8	+5.06	0.05	1222	−176	0	24		32	753
9	10	5.46	.06	1271	189	1	17		33	749
10	13	+6.39	− 0.06	+1163	−222	− 1	−19	0	−34	+742
11	94 Aug. 1.7	+5.43	− 1.77	+1707	−188	−17	−30	0	− 4	+319
12	2	+5.43	− 0.09	+1710	−189	− 1	−31	0	− 4	+317

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
21	— 944	+1.02	—0.99	—0.36	— 32	1.3	—21	24	23	3	2
22	— 957	+1.04	—0.98	—0.23	— 18	1.0	— 9	18	21	2	0.5
							+ 8				
				Rejected Observation.							
23	—1113	—0.04	—0.97	+1.33	+122	1.2	+73	25	25	—	—

5. Screen I on D threads only; corrrection of +0s.042 applied to DT in consequence; clouds. 6. Star 13, f. 8. Star 13, f.; star 14, ff. 14. Star 13, ff; daylight illumination on all. 22. Star 13, fff; daylight illumination.

Assumed $D\alpha$ 1895.0 $= -22^s.980$ $\quad d.D\alpha = +0^s.027$ $\quad p_z = 33.11$

$x = +0.269$ $\quad d.D\mu = +0.014$ $\quad [pmn.3] = 0.1217$

$y = +0.145$ $\quad [pvv] = 0.1204$

$z = +0.376$ $\quad \pi = +0''.30 \pm 0''.079$ $\quad r = \pm 0^s.027$

Including Obs. 23: $d.D\alpha = +0^s.024$, $d.D\mu = +0^s.015$, $\pi = +0''.33 \pm 0''.079$, $r = \pm 0^s.028$.

μ CASSIOPEIAE.

	+28^s			^{s}							
1	+ 752	−1.11	−0.67	−0.42	— 12	1.3	— 8	13	13	3	
2	666	1.09	.78	+ .44	+ 71	1.3	+46	13	17	3.5	
3	639	1.07	.82	+ .71	+ 96	1.1	+53	21	6	4	
4	707	1.06	.88	+ .03	+ 27	1.6	+22	21	19	4	
5	701	1.03	0.95	+ .09	+ 30	1.4	+21	21	21	2.5	
6	735	0.98	1.00	— .25	— 6	1.2	— 4	21	21	1	
7	638	.98	1.00	+ .72	+ 91	1.4	+64	22	20	2.5	
8	743	.98	1.00	— .33	— 14	1.8	—12	24	21	4.5	
9	780	.97	1.00	— .70	— 52	1.7	−44	22	19	4	
10	+ 629	−0.96	−0.99	+0.81	+ 99	1.1	+54	21	19	2	1
							+19				
11	+ 787	−0.42	+0.91	−0.77	— 28	1.8	−25	22	18	5	4.5
12	+ 802	−0.41	+0.91	−0.92	— 43	1.8	−38	22	19	5	4.5

13 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
13	'94, Aug. 4.7	+ 5.43	− 0.09	+1660	−188	− 1	−37	0	− 3	+313
14	6	5.43	.09	1654	189	1	31		2	309
15	11	5.43	.09	1666	188	1	33		0	298
16	16.6	5.43	0.09	1644	189	1	31		+ 2	288
17	17	6.94	1.77	1810	241	17	30		2	285
18	20	+ 5.43	0.09	1719	−188	1	30		3	280
19	21	− 5.05	14.49	1270	+175	139	31		4	278
20	23	+ 5.43	− 0.09	+1800	−188	− 1	−27	0	+ 5	+274
21	94 Dec. 2.3	− 7.37	−16.41	+1554	+256	−158	−38	0	− 5	+ 60
22	4	+ 5.51	0.01	1910	−191	0	33	+1	6	56
23	14	—11.53	11.53	1408	+400	111	31	0	12	35
24	17	+ 5.51	0.01	1960	−191	0	32	1	13	29
25	25	− 9.01	12.82	1553	+313	123	33	0	18	24
26	29	0.01	0.01	1791	0	0	33	0	20	+ 3
27	31	− 5.53	27.37	1924	+192	−263	33	1	21	− 1
28	95 Jan. 1	+ 5.51	0.01	1939	−191	0	35	0	21	4
29	2	3.75	− 0.01	1916	130	0	35	1	22	6
30	8.2	2.74	+ 1.02	1825	95	+ 10	48	0	24	19
31	10	5.63	0.11	1955	195	1	40	1	25	23
32	13	2.50	+ 2.50	1712	87	+ 24	41	0	27	29
33	15	+ 5.52	0.00	2038	−192	0	9	0	28	34
34	16	0.00	0.00	+1768	0	0	− 9	+1	−29	− 36
35	95 July 29.7	−18.26	−12.83	+1643	+633	−123	+23	0	+ 2	−445
36	30	14.52	13.00	1703	504	125	20		3	447
37	31	−10.88	16.10	1980	+377	155	20		3	449
38	Aug. 3	+ 5.50	0.02	2387	−191	0	24		5	455
39	6	− 3.46	3.46	1936	+119	− 33	24		6	461
40	9	− 5.32	− 0.02	+1956	+185	0	+31	0	+ 7	−468

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
13	+ 744	−0.41	+0.89	−0.34	+ 14	1.6	+11	22	19	3.5	3
14	740	.40	.88	− .30	+ 18	1.6	+14	22	19	3.5	3
15	742	.39	.84	− .32	+ 15	1.9	+14	22	19	5	5
16	733	.37	.79	− .23	+ 23	1.9	+22	22	19	5	5
17	809	.37	.78	− .99	− 54	1.6	−43	21	18	4.5	4
18	783	.36	.74	−0.73	− 29	1.7	−25	22	19	3	4
19	557	.36	.73	+1.53	+197	0.5	+49	20	9	3	2.5
20	+ 863	−0.35	+0.71	−1.53	−110	1.8	−99	22	19	5	5
							−12				
21	+ 669	−0.08	−0.81	+0.41	+ 40	1.4	+28	15	16	4	4
22	737	.07	.83	− .27	− 29	1.5	−22	22	19	3	3
23	689	.04	.91	+ .21	+ 16	1.2	+10	20	20	3	2
24	754	.04	.93	− .44	− 49	1.6	−39	22	19	4	4
25	716	− .01	.97	− .06	− 13	1.7	−11	20	18	4.5	4.5
26	741	.00	.99	− .31	− 39	1.5	−29	19	19	3.5	3.5
27	799	.00	.99	− .89	− 97	1.0	−48	22	10	2.5	2
28	688	+ .01	0.99	+ .22	+ 14	1.7	+12	22	19	4	4.5
29	724	.01	1.00	− .14	− 22	1.8	−20	21	19	5	5
30	649	.02	1.00	+ .61	+ 52	1.0	+26	20	18	2	0
31	674	.03	1.00	+0.36	+ 27	1.7	+23	22	19	4.5	4.5
32	552	.04	0.99	+1.58	+149	0.5	+38	17	17	0.5	0
33	775	.04	.99	−0.65	− 74	1.5	−56	22	19	2	3
34	+ 695	+0.05	−0.98	+0.15	+ 6	1.4	+ 4	19	19	3	2.5
							− 6				
35	+ 733	+0.58	+0.93	−0.23	− 1	1.5	− 1	15	18	4.5	4
36	658	.58	.93	+ .52	+ 74	1.5	+ 56	18	19	5	4
37	776	.58	.93	− .66	− 44	1.6	− 35	14	17	5	5
38	770	.59	.91	−0.60	− 38	1.8	− 34	22	19	5	5
39	591	.60	.88	+1.19	+140	1.5	+105	17	17	4.5	4
40	+ 711	+0.61	+0.86	−0.01	+ 19	1.4	+ 14	16	19	4	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
41	'95, Aug. 11.7	+ 5.50	− 0.02	+2330	−191	0	+27	0	+ 8	−472
42	12	− 3.46	5.32	2147	+119	− 51	21		9	474
43	14.6	18.26	12.83	1594	633	123	21		9	478
44	15	− 5.70	−12.83	+2007	+198	−123	+21	0	+10	−480
45	95 Nov. 29.4	+ 5.40	− 0.12	+2519	−187	− 1	+36	+1	+ 5	−705
46	Dec. 4.3	−14.64	12.93	2071	+508	124	37	1	2	716
47	5	+ 1.80	0.12	2407	− 62	1	40	1	+ 2	718
48	8	5.40	.12	2529	187	1	40	1	0	724
49	12	5.40	.12	2475	187	1	40	1	− 1	732
50	15	1.80	.12	2408	62	1	40	0	3	739
51	23	+ 5.40	.12	2570	−187	1	39	1	7	756
52	26	− 0.12	.12	2385	+ 4	1	31	1	9	762
53	27	.12	.12	2422	4	1	31	1	10	764
54	31	− 0.12	.12	2391	+ 4	1	31	1	12	773
55	96 Jan. 6.2	+ 5.40	.12	2642	−187	1	24	1	15	785
56	8	5.40	.12	2758	187	1	24	0	16	789
57	12	+ 5.40	− 0.12	+2662	−187	− 1	+22	+1	−18	−798

19. Star 17, f. Transit of 19 much broken because the observer was obliged to leave the instrument and add pressure to the chronograph to keep it running.

Epoch.	Estimates of Magnitudes.			No. of Ests.
4th	7.92	7.70	6.92	8
5th	7.92	7.75	6.84	10

Normal Equations.

$+133.16\,x + 16.20\,y - 37.27\,z - 7.58 = 0$

$+ 16.20\,x + 66.30\,y - 11.48\,z + 18.28 = 0$

$- 37.27\,x - 11.48\,y + 110.00\,z + 23.99 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\frac{1}{2}'p$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
41	+ 702	+0.61	+0.84	+0.08	+ 27	1.5	+20	22	19	4	3
42	771	.62	.83	− .61	− 42	1.3	−28	17	16	4.5	3.5
43	656	.62	.81	+ .54	+ 72	1.3	+47	15	18	4.5	3
44	+ 633	+0 62	+0.80	+0.77	+ 95	1.0	+48	21	18	3	0.5
							+19				
45	+ 668	+0.91	−0.78	+0.42	+ 14	1.8	+12	22	19	5	5
46	779	.93	.83	− .69	− 98	1.7	−84	17	18	4.5	4.5
47	669	.93	.84	+ .41	+ 12	1.5	+ 9	20	19	3.5	3
48	658	.94	.87	+0.52	+ 21	1.8	+20	22	19	5	5
49	595	.95	.90	+1.15	+ 83	1.5	+62	22	19	4	3
50	643	.96	.92	+0.67	+ 35	1.2	+21	20	19	2	2
51	659	.98	.97	+ .51	+ 17	1.8	+16	22	19	5	4.5
52	649	.99	.98	+ .61	+ 26	1.7	+21	19	19	4.5	4.5
53	683	0.99	.98	+ .27	− 8	1.7	− 7	19	19	4.5	4.5
54	641	1.00	0.99	+ .69	+ 34	1.7	+29	19	19	4.5	4.5
55	679	1.02	1.00	+ .31	− 5	1.8	− 4	22	19	4.5	4
56	789	1.02	1 00	− .79	−115	1.6	−92	22	19	4	3
57	+ 681	+1.04	−1.00	+0.29	− 7	1.6	− 6	22	19	3	3
							0				

20. Observed through haze. 32. Stars invisible at some threads. 35. Daylight illumination. 40. Through clouds.

Assumed $D\alpha$ 1895.0 $= +28^s.710$

$x = +0.156$

$y = -0.272$

$z = +0.243$

$d.D\alpha = +0^s.016$

$d.D\mu = -0.027$

$\pi = +0''.12 \pm 0''.026$

$p_z = 98.82$

$[pnn.3] = 0.3579$

$[pvv\ ] = 0.3564$

$r = \pm 0^s.028$

Stars 18 and 19. $d\Delta\mu = -0^s.004$, $\pi = +0''.23 \pm 0''.032$, $r_1 = \pm 0''.14$; 57 obs.

TABLE VII (Continued).

STARS 20, 21, 22.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	−40s						
1	'94, Dec. 2.4	− 0.09	− 0.09	− 838	0	0	−22	−1	− 8	
2	17.3	.01	.01	874	0	0	17	0	7	
3	25	.01	.01	848	0	0	17	1	6	
4	95 Jan. 1	0.01	0.01	890	0	0	18	0	5	
5	2	3.61	− 3.61	886	− 18	+ 11	18	1	5	
6	8	− 5.41	+ 0.11	823	− 27	0	23	0	4	
7	12.2	+ 0.11	.11	913	+ 1	0	21	1	4	
8	13	+ .11	+ .11	877	0	0	21	0	4	
9	16	0.00	0.00	− 946	0	0	− 5	−1	− 4	
10	95 July 29.7	− 1.79	+ 0.06	− 979	− 9	0	+14	0	−10	
11	Aug. 3	0.02	− 0.02	950	0	0	13	0	10	
12	12	.02	.02	894	0	0	11	0	10	
13	15.6	− 0.02	− 0.02	− 921	0	0	+11	0	−10	
14	95 Nov. 29.4	+ 5.40	−27.54	−1080	+ 26	+ 85	+19	−1	− 2	
15	Dec. 5.3	− 0.12	− 0.12	893	− 1	0	21	1	0	
16	15	.12	.12	890	0	0	20	1	+ 1	
17	23	.12	.12	917	− 1	0	18	1	1	
18	27	.12	.12	933	0	+ 1	17	1	2	
19	96 Jan. 6	.12	.12	976	− 1	0	13	1	2	
20	14.2	− 0.12	− 0.12	− 972	0	0	+11	−1	+ 3	

10. Star 22, fff; daylight illumination.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	7.00	6.37	7.27	3
3d	7.10	6.17	7.33	3

Normal Equations.

$+63.98\,x + 28.65\,y - 37.61\,z - 5.49 = 0$

$+28.65\,x + 25.41\,y - 13.17\,z - 0.15 = 0$

$-37.61\,x - 13.17\,y + 55.75\,z + 6.98 = 0$

TABLE VII (Continued).

9 CETI.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p_1'}$ *	m_1	m_2	Images.	
	-40^s			^{s}							
1	− 869	−0.08	−0.77	−0.51	− 33	2.0	−33	25	25	4.5	4.5
2	898	.04	.91	− .22	− 2	2.0	− 2	25	25	4.5	4.5
3	872	− .01	.96	− .48	− 29	1 8	−26	25	25	3.5	3.5
4	913	+ .01	.98	− .07	+ 12	2.0	+12	25	25	4.5	4.5
5	917	.01	0.99	− .03	+ 16	1.9	+15	23	23	4.5	4.5
6	877	.02	1.00	− .43	− 24	1.8	−22	22	25	4	3.5
7	938	.04	1.00	+ .18	+ 36	1.7	+30	25	25	2.5	3
8	902	.04	1.00	− .18	0	1.7	0	25	25	2.5	3
9	− 956	+0.05	−0.99	+0.36	+ 54	1.5	+40 + 2	25	25	2.5	2
10	− 984	+0.58	+0.96	+0.64	+ 56	1.3	+36	24	24	4	3
11	947	.59	.94	+ .27	+ 19	2.0	+19	25	25	5	5
12	893	.62	.87	− .27	− 35	1.8	−32	25	25	4	3
13	− 920	+0.62	+0.85	0.00	− 8	1.8	− 7 + 4	25	25	4	3
14	− 953	+0.91	−0.73	+0.33	+ 36	1.0	+18	22	4	5	5
15	874	.93	.80	− .46	− 43	2.0	−43	25	25	5	5
16	870	.96	.89	− .50	− 47	1.6	−38	25	25	2.5	2.5
17	900	.98	.95	− .20	− 16	2.0	−16	25	25	5	4.5
18	914	0.99	0.97	− .06	− 2	2.0	− 2	25	25	4.5	4.5
19	963	1.02	1.00	+ .43	+ 46	1.7	+39	25	25	3	2.5
20	− 959	+1.04	−1.00	+0.39	+ 42	1.8	+38 − 1	25	25	3.5	4

Assumed $D\alpha$ 1895.0 $= -40^s.920$ $\quad d.D\alpha = +0^s.010$ $\quad p_z = 32.56$

$x = +\ 0.100$ $\quad d.D\mu = -0.016$ $\quad [pnn.3] = 0.0590$

$y = -\ 0.156$ $\quad [pvv\ ] = 0.0576$

$z = -\ 0.094$ $\quad \pi = -0''.08 \pm 0''.056$ $\quad r = \pm 0^s.020$

TABLE VII (Continued).

STARS 23, 24, 25.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	−0s						
1	'94, Dec. 4.4	− 0.01	− 0.01	−2148	0	+ 1	−76	0	+ 4	
2	13.3	.01	.01	2146	− 1	1	68		− 3	
3	14	.01	.01	2177	0	1	68		4	
4	31	.01	.01	2128	− 1	1	76		20	
5	95 Jan. 3	− .01	− .01	2131	0	+ 1	79		24	
6	10.2	+ .11	+ .11	2165	+ 6	− 12	90		31	
7	15	0.00	0.00	2155	0	0	21		42	
8	22	−10.85	−12.81	−2949	−573	+1371	−28	0	−45	
9	95 Aug. 9.7	− 0.02	− 0.02	−2245	− 1	+ 2	+72	0	+16	
10	11	+ 5.50	+ 5.50	1951	+290	− 588	65		+18	
11	14	− 0.02	− 0.02	−2226	− 1	+ 2	+48	0	+21	
12	95 Dec. 4.3	− 0.12	− 0.12	−2357	− 6	+ 13	+83	0	+48	
13	8	.12	.12	2394	6	13	93		45	
14	12	.12	.12	2388	6	13	91		43	
15	26	.12	.12	2298	7	12	81		30	
16	31	.12	.12	2291	6	13	77		23	
17	96 Jan. 8	− 0.12	− 0.12	−2238	− 6	+ 13	+58	0	+15	

8. Daylight illumination; clouds. Est. mags.: 6.5, 7.8 to 8.2, 7.7 to 8.0.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	6.70	7.30	6.85	2
3d	6.48	7.12	6.48	2

Normal Equations.

$+52.24\,x + 24.20\,y - 31.63\,z + 11.19 = 0$

$+24.20\,x + 21.81\,y - 12.01\,z + 1.02 = 0$

$-31.63\,x - 12.01\,y + 43.59\,z - 15.18 = 0$

TABLE VII (Continued).

ω ANDROMEDAE.

No.	$D\alpha$ 1895.0	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p_1}'$ *	m_1	m_2	Images.	
	-2^s			^{s}							
1	— 219	—0.07	—0.78	+0.29	— 14	1.8	—12	25	25	3.5	3.5
2	217	.05	.87	+ .27	— 19	2.0	—19	25	25	4.5	
3	248	— .04	.87	+ .58	+ 13	1.5	+10	25	25	3.5	2
4	224	.00	.98	+ .34	— 13	1.7	—11	25	25	2.5	3
5	233	+ .01	0.99	+0.43	— 5	1.7	— 4	25	25	3.5	3.5
6	292	.03	1.00	+1.02	+ 54	2.0	+54	25	25	5	5
7	218	.04	1.00	+0.28	— 19	1.7	—16	25	25	3.5	3.5
8	— 224	+0.06	—0.98	+0.34	— 11	1.3	— 7 — 1	19	18	2	2
9	— 156	+0.61	+0.90	—0.34	— 4	1.7	— 3	25	25	4	3
10	166	.61	.88	— .24	+ 5	1.6	+ 4	22	22	4	3
11	— 156	+0.62	+0.86	—0.34	— 4	1.9	— 4 — 1	25	25	4.5	4
12	— 219	+0.93	—0.78	+0.29	+ 17	1.8	+16	25	25	4	4
13	249	.94	.82	+ .59	+ 47	2.0	+47	25	25	5	5
14	247	.95	.86	+ .57	+ 43	1.4	+30	25	25	2.5	2
15	182	0.99	.96	— .08	— 25	1.8	—22	25	25	4.5	4
16	184	1.00	0.98	— .06	— 21	2.0	—21	25	25	4.5	4.5
17	— 158	+1.02	—1.00	—0.32	— 48	1.7	—41 + 2	25	25	3	3

14. Star 24 becoming fainter during transit.

Assumed $D\alpha$ 1895.0 $= -2^s.190$ $\quad d.D\alpha = -0^s.017$ $\quad p_z = 23.78$

$x = -0.172$ $\quad d.D\mu = +0.032$ $\quad [pnn.3] = 0.0397$

$y = +0.315$ $\quad [pvv] = 0.0396$

$z = +0.310$ $\quad \pi = +0''.18 \pm 0''.042$ $\quad r = \pm 0^s.018$

TABLE VII (Continued).

STARS 26, 27, 28.

No.	Date.	c_1'	c_2'	$D1$	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	—18*	*	*	*	*	*	*
		s	s							
1	'93, Dec. 19.3	— 3.66	+14.49	— 678	+ 21	+90	— 2	0	— 3	—252
2	21	30.98	— 0.06	641	177	0	1		3	251
3	94 Jan. 6	—17.73	5.58	643	+101	— 35	1		2	240
4	7	+ 0.16	0.06	465	— 1	0	2		2	240
5	8	— 8.55	5.58	527	+ 49	35	2		2	240
6	13	—29.11	— 5.58	— 705	+166	— 35	— 2	0	— 2	—236
7	94 Aug. 11.7	+ 1.05	— 0.09	— 599	— 6	— 1	— 4	0	— 5	— 94
8	17	—17.94	+ .42	911	+103	+ 3	3		5	91
9	Sept. 3.6	—12.90	— 0.09	— 653	+ 74	— 1	— 3	0	— 5	— 80
10	94 Dec. 13.3	— 3.61	— 0.01	— 705	+ 21	0	— 2		— 1	— 12
11	17	5.53	.01	790	32	0	2	0	0	9
12	25	3.61	0.01	667	21	0	3		0	— 4
13	31	12.82	5.53	727	73	— 34	2		0	0
14	95 Jan. 1	0.01	0.01	734	0	0	3		0	+ 1
15	2	5.53	.01	653	32	0	3		0	2
16	3	0.01	.01	726	0	0	3		0	3
17	7	— 3.86	— .01	708	+ 22	0	3		0	5
18	8	+ 0.11	+ .11	734	— 1	+ 1	3		0	6
19	10	— 0.41	+ .11	757	+ 2	+ 1	3		0	7
20	15.2	— 5.52	.00	768	+ 32	0	1		0	10
21	16	0.00	0.00	— 831	0	0	— 1	0	+ 1	+ 11
22	95 Aug. 9.7	—29.07	— 5.54	— 942	+166	— 34	+ 3	0	— 2	+148
23	11	27.38	0.02	993	156	0	3		2	150
24	14	12.15	12.83	787	+ 69	— 80	2		2	152
25	15	— 0.02	— 0.02	— 778	0	0	+ 2	0	— 2	+152

TABLE VII (Continued).

τ CETI.

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
	—18^s			^{s}							
1	— 824	—1.03	—0.87	+0.84	+ 81	1.5	+61	23	17	3	
2	719	1.03	.89	— .21	— 21	1.4	—17	8	25	4	
3	770	0.98	.98	+ .30	+ 26	1.0	+18	15	22	3	
4	710	.98	.99	— .30	— 34	1.7	—29	18	25	3.5	
5	707	.98	0.99	— .33	— 38	1.2	—23	15	22	4.5	
6	— 764	—0.96	—1.00	+0.24	+ 19	0.7	+ 7	19	22	2.5	0.5
							+ 3				
7	— 709	—0.39	+0.92	—0.31	+ 29	1.5	+14	23	25	3.5	3
8	854	.37	.87	+1.14	+174	0.5	+43	11	24	2	2
9	— 668	—0.32	+0.71	—0.72	— 14	1.6	—11	18	25	3	3
							+15				
10	— 699	—0.05	—0.82	—0.41	— 12	1.6	— 9	23	25	3	3
11	769	.04	.86	+ .29	+ 59	1.8	+53	22	25	4.5	4.5
12	653	— .01	.92	— .87	— 58	1.7	—49	23	25	4	4
13	690	.00	.96	— .50	— 22	1.6	—18	18	22	3	3
14	736	+ .01	.96	—0.04	+ 24	1.4	+17	25	25	4	3
15	632	.01	.97	—1.18	— 90	1.3	—58	22	25	5	4.5
16	726	.01	.97	—0.14	+ 14	1.3	+ 9	25	25	3	2.5
17	684	.02	.98	— .56	— 28	1.6	—24	21	25	3.5	3
18	731	.02	.99	— .09	+ 20	1.3	+13	19	19	3.5	2.5
19	700	.03	0.99	— .40	— 12	1.2	— 7	24	25	3	3
20	727	.04	1.00	— .13	+ 15	1.3	+10	22	25	3	2
21	— 770	+0.05	—1.00	+0.30	+ 59	1.3	+38	25	25	3	1.5
							— 2				
22	— 611	+0.61	+0.93	—1.29	— 37	1.0	—18	9	22	4	3
23	686	.61	.92	—0.54	+ 39	1.4	+27	10	25	3	3
24	646	.62	.90	—0.94	— 2	1.5	— 2	17	18	4	3
25	— 626	+0.62	+0.89	—1.14	— 22	2.0	—22	25	25	4.5	4.5
							— 4				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
26	'95, Dec. 4.4	− 0.12	−0.12	− 855	+ 1	− 1	+ 4	0	+ 1	+227
27	5	0.12	.12	849	1	1	4	−1	1	228
28	7	7.34	.12	918	42	1	4	0	1	229
29	8	18.36	.12	1067	105	0	4	1	2	230
30	15.3	0.12	.12	934	1	1	4	0	2	235
31	23	0.12	.12	988	1	1	4	1	2	240
32	26	5.64	.12	909	32	1	4	0	2	242
33	27	0.12	.12	863	1	0	3	1	2	243
34	96 Jan. 6	10.97	.12	1010	63	1	3	0	2	249
35	14.2	− 0.12	−0.12	−1028	+ 1	− 1	+ 2	−1	+ 2	+254

1. Star 26, faint and diffuse. 3. Star 26, ff and difficult. 5. Star 26, fff; sky getting thick. 6. Star 26, fff. 7. Star 26, ff. 8. Star 26, fff; lost on some threads. 14. Star 26, ff.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	8.25	6.30	7.40	2
5th	8.22	6.30	7.52	9

Normal Equations.

$+76.03\,x + 19.29\,y - 43.67\,z - 34.36 = 0$

$+19.29\,x + 38.93\,y - 8.96\,z - 20.27 = 0$

$-43.67\,x - 8.96\,y + 62.35\,z + 10.19 = 0$

3. 1894, Jan. 6. The setting of the screens so far from the zenith is noted as unsatisfactory.

STARS 29, 30, 31.

				+13s					
		s	s						
1	'94, Dec. 25.3	−17.67	−36.08	+669	+371	−826	+12	0	+ 2
2	95 Jan. 1	0.01	0.01	128	0	0	12		2
3	2	− 0.01	41.51	973	0	951	13		2
4	7	+10.25	− 5.78	597	−215	−132	15		2
5	10	0.11	+ 0.11	139	2	+ 3	14		2
6	12	+ .11	− 0.57	135	− 2	− 13	15		2
7	15	.00	.00	182	0	0	3		2
8	16	0.00	0.00	+ 157	0	0	+ 3	0	+ 2

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
26	− 623	+0.93	−0.72	−1.17	− 53	1.6	−42	25	25	3.5	3
27	617	.93	.73	−1.23	− 59	1.5	−44	25	25	3.5	2.5
28	643	.94	.75	−0.97	− 34	1.5	−26	21	25	4	3
29	727	.94	.77	− .13	+ 50	1.5	+37	15	25	5	3
30	693	.96	.84	− .47	+ 15	1.7	+13	25	25	3.5	3
31	743	.98	.91	+0.03	+ 64	1.8	+58	25	25	5	4
32	630	.99	.93	−1.10	− 49	1.7	−42	22	25	4.5	4
33	615	0.99	.93	−1.25	− 64	1.5	−48	25	25	4	2.5
34	694	1.02	0.98	−0.46	+ 15	1.5	+11	19	25	3	2.5
35	− 771	+1.04	−1.00	+0.31	+ 92	1.8	+83	25	25	4.5	4
							0				

15. Star 26, ff; clouds. 16. Star 26, ff. 19. Star 26, fff; clouds near. 20. Star 26, ff and diffuse. 21. Star 26, ff; threads dim. 22. Est. mags.: 8.7, 6.2 to 7.0, 7.5.

Assumed $D\alpha$ 1895.0 $= -18^s.740$ $\quad d.D\alpha = +0^s.051$ $\quad p_z = 37.11$

$x = + 0.507$ $\quad d.D\mu = +0.032$ $\quad [pnn.3] = 0.1661$

$y = + 0.324$ $\quad [pvv\ ] = 0.1648$

$z = + 0.238$ $\quad \pi = +0''.18 \pm 0''.062$ $\quad r = \pm 0^s.024$

In observations 3, 5, 6, 8, 19, 21, and 22, the correction $+0^s.050$ is applied to DT on account of the extreme faintness of star 26.

α ARIETIS.

	$+13^s$			^{s}							
1	+ 228	−0.01	−0.88	−0.38	− 57	1.8	−51	14	5	4.5	3
2	142	+ .01	.93	+0.48	+ 28	2.0	+28	25	25	5	5
3	037	.01	.94	+1.53	+134	0.5	+34	25	2	5	5
4	267	.02	.97	−0.77	− 96	0.5	−24	15	6	0	0
5	156	.03	.98	+ .34	+ 16	1.4	+11	19	19	3	2.5
6	137	.01	.99	+ .53	+ 35	1.7	+30	25	24	3	3
7	187	.01	0.99	+ .03	− 14	1.7	−12	25	25	3	3
8	+ 162	+0.05	−1.00	+0.28	+ 9	1.8	+ 8	25	25	4	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
9	'95, Jan. 22.2	+2.38	+ 2.08	+ 028	− 50	+ 48	+ 5	0	+ 2	
10	24	0.00	0.00	221	0	0	5		2	
11	26	0.00	− 1.51	+ 147	0	− 35	+ 4	0	+ 2	
12	95 Aug. 11.7	−3.62	−18.26	+ 578	+ 76	−418	− 9	0	− 1	
13	12	0.02	5.54	337	0	−127	8		1	
14	14	−0.02	− 0.02	+ 169	+ 1	0	− 8	0	− 1	
15	95 Dec. 7.4	−0.12	− 0.12	+ 227	+ 3	− 3	−15	0	− 9	
16	15.3	.12	.12	223	2	3	15	0	9	
17	23	0.12	0.12	272	3	3	14	+1	9	
18	27	5.64	5.64	285	118	129	12	0	9	
19	96 Jan. 6	0.12	0.12	213	2	2	9	0	9	
20	8	.12	.12	220	3	3	9	+1	9	
21	14	−0.12	− 0.12	+ 229	+ 2	− 3	− 8	0	− 9	

1. Star 30, image breaking at times. 3. Star 31, ff; clouds. 9. Star 31, invisible frequently.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
2d	7.30	7.25	8.10	2	$+53.74\,x + 27.94\,y - 37.45\,z - 3.68 = 0$
3d	7.32	7.23	7.95	6	$+27.94\,x + 25.50\,y - 17.47\,z - 6.90 = 0$
					$-37.45\,x - 17.47\,y + 46.82\,z + 1.58 = 0$

STARS 32, 33, 34.

				+48s						
		s	s							
1	'93, Dec. 21.3	+ 5.46	−12.74	+ 537	+ 246	+543	+ 6	0	+ 9	+185
2	31	3.08	7.34	845	139	314	7		10	180
3	94 Jan. 6	+ 3.23	20.06	112	+ 145	855	6		10	176
4	13	− 0.29	8.15	925	− 13	347	7		10	173
5	18	23.37	18.30	1591	1056	780	6		10	171
6	26.2	− 0.06	− 7.34	+1069	− 3	+312	+ 9	0	+10	+167

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
9	+033	+0.06	−1.00	+1.57	+140	0.5	+35	23	12	0.5	0
10	228	.07	1.00	−0.38	− 55	2.0	−55	25	25	4.5	4.5
11	+118	+0.07	−1.00	+0.72	+ 55	1.0	+28	25	20	3	2
							+ 5				
12	+226	+0.61	+0.96	−0.36	− 22	1.5	−16	23	15	4	3
13	201	.62	.95	− .11	+ 4	1.7	+ 4	25	22	4.5	3.5
14	+161	+0.62	+0.94	+0.29	+ 43	1.2	+26	25	24	2.5	0.5
							+ 5				
15	+203	+0.94	−0.69	−0.13	+ 11	1.7	+ 9	25	25	4	3
16	198	.96	.79	− .08	+ 17	1.7	+14	25	25	4	3
17	250	.98	.87	− .60	− 36	2.0	−36	25	25	5	4 5
18	253	0.99	.90	− .63	− 37	1.9	−35	25	22	5	5
19	195	1.02	.96	− .05	+ 21	1.8	+19	25	25	5	4
20	203	1.02	.97	− .13	+ 14	1.6	+11	25	25	3	2.5
21	+211	+1.04	−0.99	−0.21	+ 6	2.0	+ 6	25	25	5	5
							− 2				

11. Star 31, fff; clouds. One thread rejected. 14. Star 31, ff.

Assumed $D\alpha$ 1895.0 = $+13^s.190$ $d.D\alpha = -0^s.016$ $p_z = 20.36$

$x = -0.165$ $d.D\mu = +0.045$ $[pmn.3] = 0.0621$

$y = +0.454$ $[pvv] = .0632$

$z = +0.003$ $\pi = 0''.00 \pm 0''.065$ $r = \pm 0^s.020$

δ TRIANGULI.

	+49s			s							
1	+ 526	−1.03	−0.82	−0.46	− 37	1.6	−30	22	12	5	
2	495	1.00	.91	−0.15	− 4	1.7	− 4	20	15	5	
3	304	0.98	.95	+1.76	+187	0.3	+28	14	7	0	
4	449	.96	.98	+0.31	+ 41	1.3	+26	18	14	3	3
5	502	.95	0.99	− .22	− 10	1.1	− 6	12	15	3	2
6	+ 564	+0.93	−1.00	−0.84	− 72	1.4	−50	19	15	3.5	3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
7	'94, Jan. 27.2	+ 5.51	— 7.29	+ 736	+ 249	+ 311	+ 9	0	+10	+166
8	29	—23.32	—33.02	+1012	—1054	+1407	+10	0	+10	+166
9	94 Aug. 17.7	+ 5.43	— 9.05	+ 756	+ 245	+ 387	+10	0	+11	+ 67
10	20	5.43	19.63	229	245	836	10		11	65
11	23	+ 5.43	12.82	509	+ 245	546	10		11	63
12	26	—10.78	27.51	991	— 487	1172	11		11	63
13	Sept. 1.6	+ 3.45	12.77	795	+ 155	546	10		10	59
14	3	— 0.09	7.37	1071	— 4	315	10		10	58
15	10	— 5.61	—34.54	+ 223	— 253	+1471	+12	0	+ 9	+ 54
16	94 Dec. 14.4	+ 5.51	—12.69	+ 699	+ 249	+ 541	+11	+1	0	+ 8
17	25.3	—16.90	17.45	1536	— 764	743	12	1	0	+ 2
18	31	+ 5.51	7.29	917	+ 249	311	12	1	0	0
19	95 Jan. 1	5.51.	12.69	703	249	541	12	1	0	— 1
20	10	5.63	7.17	893	254	305	14	1	0	5
21	12	3.50	21.64	345	158	926	14	0	0	6
22	15	+ 5.52	7.28	981	+ 249	312	3	1	0	8
23	16	—10.85	21.51	1110	— 490	922	3	1	0	8
24	24.2	—14.52	27.36	1074	— 656	1165	4	1	+ 1	12
25	26	0.00	15.83	763	000	674	4	1	1	13
26	27	+ 7.14	12.68	670	+ 323	540	5	+1	1	13
27	29	+ 7.17	— 6.38	+ 888	+ 324	+ 272	+ 5	0	+ 1	— 14
28	95 Aug. 11.7	+ 1.15	— 7.30	+1321	+ 52	+ 311	—10	0	+ 2	—110
29	14	+ 5.50	17.61	731	+ 248	750	8	0	1	111
30	15	— 1.79	—16.34	+1005	— 81	+ 696	— 8	0	+ 1	—112
31	95 Dec. 23.3	+ 5.40	— 7.40	+1195	+ 244	+ 315	—14	+1	—10	—176
32	26	+ 5.40	—12.80	+ 961	+ 244	+ 545	—13	+2	—10	—177

TABLE VII (Continued).

No.	*Da* 1895.0	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
7	+ 481	—0.92	—1.00	—0.01	+ 11	1.6	+ 9	22	15	3.5	4
8	+ 551	—0.92	—1.00	—0.71	— 60	0.7	—21	12	7	4	1
							— 6				
9	+ 476	—0.37	+0.93	+0.04	+ 19	1.5	+14	22	14	4	4
10	396	.36	.91	+0.84	+100	1.0	+50	22	8	3	3
11	387	.35	.89	+0.93	+110	1.6	+88	22	11	5	5
12	761	.35	.87	—2.81	—265	0.2	—26	14	4	2	2
13	575	.33	.82	—0.95	— 78	1.6	—62	20	12	5	5
14	460	.32	.80	+0.20	+ 37	1.4	+26	19	15	3	3
15	+ 516	—0.30	+0.72	—0.36	— 18	1.0	— 9	22	6	2.5	2.5
							+12				
16	+ 509	—0.04	—0.74	—0.29	— 1	1.0	0	22	12	3.5	2
17	530	— .01	.86	— .50	— 20	0.6	— 6	12	13	4	2
18	490	.00	.91	— .10	+ 21	1.6	+17	22	15	4	4
19	505	+ .01	.91	— .25	+ 6	1.7	+ 5	22	12	5	5
20	462	.03	.97	+ .18	+ 49	1.4	+34	22	15	3	3
21	437	.04	.98	+ .43	+ 75	0.6	+22	19	7	2	0.5
22	537	.04	.99	— .57	— 25	1.5	—18	22	15	3	2.5
23	538	.05	0.99	— .58	— 26	1.5	—20	19	13	4	4
24	577	.07	1.00	— .97	— 66	1.0	—33	17	10	2.5	2.5
25	430	.07	1.00	+ .50	+ 82	1.1	+45	19	10	3	2.5
26	527	.08	1.00	— .47	— 14	1.0	— 7	17	12	2.5	2
27	+ 476	+0.08	—1.00	+0.04	+ 37	0.8	+15	15	15	3.5	3.5
							+ 5				
28	+ 566	+0.61	+0.97	—0.86	— 52	1.4	—36	19	15	4	3
29	611	.62	.95	—1.31	— 95	1.3	—62	22	9	4	3.5
30	+ 501	+0.62	+0.95	—0.21	+ 15	0.8	+ 6	24	16	3	0.5
							—31				
31	+ 555	+0.98	—0.84	—0.75	— 26	1.7	—22	22	15	5	4.5
32	+ 552	+0.99	—0.87	—0.72	— 22	1.6	—18	22	12	4.5	4

15 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	$D1$	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
33	'95, Dec. 27.3	+ 5.40	— 7.40	+1163	+ 244	+ 315	−12	+1	−10	−178
34	96 Jan. 29.2	− 5.64	−18.36	+1162	− 255	+ 782	−12	+2	−10	−194

2. Telescope clamped. 3. Images breaking frequently. 8. Daylight illumination.
10. Star 32, ff. 12. Stars 32 and 33, ff; star 34, fff; thick haze; star 32, one thread rejected.

Epoch.	Estimated Magnitudes.*				No. of Ests.
5th	7.40	7.48	7.77	7.65	4

Normal Equations.

$$+57.82\,x - 2.34\,y - 25.52\,z - 15.93 = 0$$
$$-2.34\,x + 27.07\,y + 0.64\,z - 4.89 = 0$$
$$-25.52\,x + 0.64\,y + 49.05\,z + 8.58 = 0$$

* Including star 35.

STARS 32, 33, 35.

				$-94s$						
		s	s							
1	'94, Sept. 1.6	+ 3.45	− 2.78	−1311	+155	+118	+11	0	− 3	+ 59
2	3	− 0.09	0.09	1157	− 4	4	10	−1	3	58
3	10	− 5.61	− 5.09	− 966	−254	+217	+12	0	− 2	+ 55
4	94 Dec. 31.3	+ 5.51	+ 5.51	−1094	+249	−235	+12	−1	+18	0
5	95 Jan. 1	5.51	5.51	1066	249	235	12	2	18	− 1
6	10	5.63	5.79	1142	253	247	14	1	20	6
7	12	3.50	3.96	1104	158	169	14	2	20	6
8	15	+ 5.52	+ 5.52	1035	+254	−235	3	1	20	8
9	16	−10.85	− 5.52	760	−490	+236	3	2	20	8
10	24.2	−14.52	−12.81	887	−656	+546	4	1	21	12
11	26	0.00	0.00	1103	0	0	3	2	21	13
12	27	+ 7.14	+ 5.52	1078	+323	−236	. 7	1	21	13
13	29	+ 7.17	+ 4.16	−1238	+324	−177	+ 4	−2	+21	− 14

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
33	+ 523	+0.99	−0.88	−0.43	+ 7	1.7	+ 6	22	15	4.5	4.5
34	+ 475	+1.08	−1.00	+0.05	+ 58	1.7	+50	22	15	4.5	4.5
							+ 4				

15. Stars 32 and 34, f. 17. Images breaking at times. 20. Clouds ? 25. Star 34, f.
27. Images disappearing at times. 28. Daylight illumination.

Assumed $D\alpha$ 1895.0 $= +49^s.480$ $d.D\alpha = +0^s.027$ $p_z = 37.78$
$x = + 0.267$ $d.D\mu = +0.020$ $[pnn.3] = 0.1427$
$y = + 0.204$ $[pvv] = 0.1420$
$z = - 0.039$ $\pi = -0''.03 \pm 0''.055$ $r = \pm 0^s.026$

Observations 13−34 (to cover the same period as the observations of star 35).

$d.D\alpha = -0^s.007$
$d.D\mu = +0^s.073$
$\pi = +0''.01 \pm 0''.065$ $r = \pm 0^s.024$

Stars 32 and 33. $d.D\mu = +0^s.014$, $\pi = +0''.08 \pm 0''.050$, $r_1 = \pm 0''.20$; 39 obs.

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	−94s			s							
1	− 971	−0.33	+0.82	−0.29	− 31	1.7	−27	20	16	5	5
2	1093	.32	.80	+0.93	+ 91	1.5	+68	19	19	3	3
3	− 938	−0.30	+0.72	−0.62	− 66	1.4	−46	22	21	2.5	2.5
							− 2				
4	−1051	0.00	−0.91	+0.51	+ 13	1.7	+14	22	22	4	4
5	1025	.00	.91	+0.25	− 13	1.9	−12	22	22	5	5
6	1109	+ .03	.97	+1.09	+ 71	1.6	+57	22	21	3	3
7	1089	.04	.98	+0.89	+ 51	1.0	+26	19	21	2	0.5
8	1002	.04	.99	+ .02	− 37	1.5	−28	22	22	3	2.5
9	1001	.05	0.99	+ .01	− 37	1.6	−30	19	22	4	4
10	985	.07	1.00	− .15	− 52	1.4	−36	17	18	2.5	2.5
11	1094	.07	1.00	+ .94	+ 57	1.4	+40	19	19	3	2.5
12	977	.08	1.00	− .23	− 60	1.3	−39	17	22	2.5	2
13	−1082	+0.08	−1.00	+0.82	+ 45	1.4	+32	15	19	3.5	3.5
							+ 2				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
14	'95, Aug. 11.7	+1.15	+5.50	− 665	+ 52	−234	− 9	−1	− 6	−110
15	14	+5.50	+5.50	816	+248	−234	8	0	6	112
16	15.6	−1.79	−4.09	− 936	− 81	+174	− 7	−1	− 6	−112
17	95 Dec. 23.3	+5.40	+5.40	− 796	+244	−230	−12	−3	+16	−176
18	26	5.40	5.40	781	244	230	11	2	16	178
19	27	+5.40	+5.40	802	+244	−230	11	3	17	178
20	96 Jan. 8	−0.12	−0.12	803	− 5	+ 5	8	2	18	184
21	29.2	−5.64	−5.64	− 873	−255	+240	−11	−3	+20	−195

See also the notes with the preceding solution.

See preceding solution for estimated magnitudes.

7. Image of star 35 especially poor.

Normal Equations.

$$+51.63\,x + 18.75\,y - 25.91\,z + 3.56 = 0$$
$$+18.75\,x + 19.77\,y - 14.63\,z - 3.87 = 0$$
$$-25.91\,x - 14.63\,y + 44.22\,z - 8.71 = 0$$

STARS 36, 37, 38.

				$-91s$						
		s	s							
1	'93, Dec. 19.4	− 0.06	− 0.06	− 988	0	0	+10	0	+20	+253
2	31.3	5.58	.06	997	+ 2	0	7	−1	21	246
3	94 Jan. 6	7.05	.06	1059	2	0	6	0	22	241
4	7	0.06	.06	912	0	0	10	1	22	241
5	13	0.06	.06	891	0	0	7	0	22	236
6	18	−18.30	.06	912	+ 5	0	6	1	22	234
7	26.2	+ 0.95	.06	934	0	0	9	0	22	229
8	27	− 0.01	.01	1031	0	0	10	1	22	226
9	29	1.03	.01	992	0	0	10	0	22	226
10	Feb. 1	− 0.01	− 0.01	− 947	0	0	+10	−1	+22	+224
11	94 Aug. 17.7	− 0.09	− 0.09	− 771	0	0	+10	0	0	+ 92
12	21	5.61	0.09	760	+ 2	0	11	−1	0	89
13	23	− 4.95	− 0.09	− 699	+ 1	0	+10	0	0	+ 88

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
14	− 973	+0.61	+0.97	−0.27	+ 25	1.5	+19	19	22	4	3
15	928	.62	.95	−0.72	− 21	1.5	−16	22	22	4	3.5
16	− 969	+0.62	+0.95	−0.31	+ 20	1.0	+10	24	19	3	0.5
							+ 4				
17	− 957	+0.98	−0.84	−0.43	− 28	1.9	−27	22	22	5	4.5
18	942	.99	.87	− .58	− 44	1.8	−40	22	22	4.5	4
19	963	0.99	.88	− .37	− 23	1.9	−22	22	22	4.5	4.5
20	979	1.02	0.96	− .21	− 8	1.7	− 7	25	25	3	3
21	−1077	+1.08	−1.00	+0.77	+ 92	1.8	+83	22	22	4.5	4.5
							− 3				

16. Image of star 35 especially poor. 20. Star 34 not seen.

Assumed $D\alpha$ 1895.0 $= -95^s.000$ $d.D\alpha = -0^s.010$ $p_z = 29.12$

$x = -0.104$ $d.D\mu = +0.052$ $[pnn.3] = 0.1161$

$y = +0.523$ $[pvv] = 0.1168$

$z = +0.309$ $\pi = +0''.20 \pm 0''.067$ $r = \pm 0^s.027$

Stars 33 and 35. $d.\Delta\mu = +0^s.034$, $\pi = +0''.18 \pm 0''.076$, $r_1 = \pm 0''.20$; 21 obs.

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	-91^s			s							
1	− 705	−1.03	−0.74	+0.26	+ 15	1.3	+10	25	25	2	
2	722	1.00	.87	+0.43	+ 34	1.9	+32	22	25	4.5	
3	788	0.98	.92	+1.10	+101	0.9	+45	20	25	0.5	
4	640	.98	.93	−0.39	− 47	1.7	−42	25	25	3.5	
5	626	.96	.96	− .52	− 60	1.0	−30	25	25	1	0.5
6	647	.95	0.98	− .32	− 39	1.2	−23	15	25	2	2
7	674	.93	1.00	− .05	− 11	1.6	− 9	24	25	4.5	3.5
8	774	.92	1.00	+ .94	+ 89	1.5	+67	25	25	2.5	3
9	741	.92	1.00	+ .62	+ 56	1.0	+28	24	25	1	1
10	− 692	−0.91	−1.00	+0.12	+ 8	1.8	+ 4	25	25	4.5	3.5
							+ 8				
11	− 669	−0.37	+0.96	−0.10	− 12	1.8	− 5	25	25	3.5	4
12	659	.36	.94	− .22	− 22	1.9	−21	22	25	4.5	
13	− 600	−0.35	+0.93	−0.78	− 80	0.8	−32	20	25	3	

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
14	'94, Sept. 1.7	— 0.09	— 0.09	— 762	0	0	+11	−1	0	+ 80
15	3	0.09	.09	813	0	0	10	0	+ 1	79
16	10.6	−19.86	.09	1082	+ 6	0	13	1	1	75
17	17	+ 0.92	.09	777	0	0	9	0	1	70
18	18	— 0.09	.09	735	0	0	9	−1	1	69
19	19	— 0.09	— 0.09	— 779	0	0	+ 9	0	+ 2	+ 69
20	94 Dec. 25.3	— 0.69	— 0.01	— 694	0	0	+11	−1	+11	+ 4
21	31	0.01	0.01	688	0	0	12	2	12	0
22	95 Jan. 1	0.01	0.01	652	0	0	12	1	12	— 1
23	3	— 5.21	— 5.21	668	+ 2	— 7	12	2	12	3
24	12	+ 0.11	+ 0.11	626	0	0	14	1	12	9
25	15	.00	.00	669	0	0	3	2	12	11
26	16	.00	.00	608	0	0	3	1	12	11
27	24	.00	.00	676	0	0	5	2	13	17
28	26	+ 0.59	.00	648	0	0	4	1	13	17
29	27.2	— 1.77	0.00	722	+ 1	0	6	2	13	19
30	28	— 5.52	— 7.03	626	+ 2	— 9	4	1	13	20
31	30	0.00	0.00	— 598	0	0	+ 6	−2	+13	— 20
32	95 Aug. 15.7	−27.38	— 0.02	— 503	+ 8	0	— 7	−1	— 9	−153
33	96 Jan. 29.3	−12.93	— 5.64	— 415	+ 4	— 7	−11	−3	+ 3	−266
34	Feb. 1	— 3.72	— 0.12	— 409	+ 1	0	−12	−2	+ 3	−268

1. Transits much broken on account of clouds. 9. Star 36, ff, diffuse. 11. Daylight illumination. 12. Star 36, f. 13. Star 36, fff. 15. Star 36, f. 16. Star 36, ff, diffuse; transit much broken. 17. Star 36, f, image very poor. 23. Images breaking at times. 29. Star 36, f. 32. Daylight illumination. 34. Star 36. fff; estimated mags.: 8.7, 6.7, 7.0.

Normal Equations.

$$+79.61\,x - 19.52\,y - 35.12\,z - 8.29 = 0$$
$$-19.52\,x + 26.11\,y + 9.08\,z - 3.89 = 0$$
$$-35.12\,x + 9.08\,y + 67.38\,z + 6.60 = 0$$

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
14	— 672	—0.33	+0.87	—0.09	— 7	1.6	— 6	25	25	3.5	3
15	723	.32	.85	+0.45	+ 45	1.6	+36	25	25	3	3
16	988	.30	.78	+3.09	+310	0.2	+31	8	25	2.5	1.5
17	696	.29	.69	+0.18	+ 19	1.2	+11	24	25	2	2
18	657	.28	.68	—0.23	— 20	1.8	—18	25	25	3	4
19	— 699	—0.28	+0.67	+0.21	+ 22	1.7	+19	25	25	3.5	3
							+ 2				
20	— 669	—0.01	—0.81	—0.10	+ 9	1.7	+ 8	24	25	3.5	3.5
21	666	.00	.87	— .16	+ 6	1.8	+ 5	25	25	4.5	4
22	630	+ .01	.87	— .50	— 30	2.0	—30	25	25	4.5	4.5
23	654	.01	.89	— .29	— 6	1.2	— 4	21	21	3	3
24	610	.04	.96	— .70	— 49	1.7	—42	25	25	3.5	3
25	667	.04	.97	— .16	+ 9	1.7	+ 8	25	25	3	3
26	605	.05	0.97	— .75	— 53	1.7	—45	25	25	3.5	3
27	677	.07	1.00	— .05	+ 19	2.0	+19	25	25	4.5	4.5
28	649	.07	1.00	— .32	— 8	1.4	— 6	24	25	2.5	2
29	723	.08	1.00	+ .41	+ 66	1.2	+40	24	25	2.5	2
30	637	.08	1.00	— .44	— 20	1.6	—16	22	21	3.5	4
31	— 601	+0.08	—1.00	—0.81	— 56	1.7	—48	25	25	3.5	3.5
							— 9				
32	— 665	+0.62	+0.97	—0.15	+ 11	1.5	+ 9	10	25	4.5	4
33	— 695	+1.08	—1.00	+0.15	+ 66	1.6	+53	18	22	4	3.5
34	— 687	+1.09	—1.00	+0.07	+ 58	1.0	+29	23	25	2.5	1.5
							+41				

Assumed $D\alpha$ 1895.0 $= -91^s.680$ $\quad d.D\alpha = +0^s.015$ $\quad p_z = 51.88$

$x = +0.146$ $\quad d.D\mu = +0.028$ $\quad [pmn.3] = 0.1173$

$y = +0.279$ $\quad [pvv] = 0.1176$

$z = -0.059$ $\quad \pi = -0''.05 \pm 0''.043$ $\quad r = \pm 0^s.020$

Pair of Stars.	$d.\Delta\mu$	π	r_1	No. of Obs.
36 and 37	$+0^s.008$	$-0''.24 \pm 0''.067$	$\pm 0''.23$	34
37 and 38	+0. 018	+0. 15 ±0. 050	±0. 17	34
37 and 38	+0. 017	+0. 10 ±0. 049	±0. 18	38

The four additional observations of the second pair were made on dates on which star 36 was not observed.

TABLE VII (Continued).

STARS 39, 40, 41.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				-1^s						
		s	s	*	*	*	*	*	*	*
1	'93, Dec. 19.4	− 0.06	− 0.06	−1747	− 3	+ 4	−24	0	−14	+262
2	31.3	0.06	.06	1764	3	4	16		16	253
3	94 Jan. 13	0.06	.06	1706	3	4	15		19	244
4	18	5.58	.06	1399	292	4	14		21	241
5	26	0.06	.06	1727	3	4	19		24	235
6	27	11.53	− 0.01	1004	604	+ 1	20		24	234
7	29	0.01	+ 2.20	1683	0	− 158	21		25	233
8	Feb. 1	.01	+ 1.00	1582	1	− 72	21		26	231
9	3.2	.01	− 0.01	1734	0	+ 1	13		26	229
10	5	.01	0.01	1672	− 1	+ 1	12		27	228
11	7	− 0.01	− 0.01	−1700	0	0	− 8	0	−28	+227
12	94 Aug. 23.7	− 0.09	−15.92	−2747	− 5	+1141	−22	0	−15	+ 90
13	26	0.09	8.20	2288	4	588	24		14	88
14	Sept. 1	0.09	0.09	1531	5	6	22		11	83
15	3	18.33	0.09	605	960	6	21		10	82
16	10	0.09	3.77	1924	5	270	27		7	77
17	17.6	.09	0.09	1528	4	6	20		4	72
18	18	.09	.09	1560	5	7	20		4	71
19	19	0.09	0.09	1478	5	6	20		3	71
20	23	16.41	16.41	1858	860	1176	23		1	68
21	24	− 0.09	− 0.09	−1518	− 4	+ 6	−23	0	− 1	+ 67
22	94 Dec. 25.3	− 1.64	− 0.79	−1515	− 86	+ 57	−25	0	+13	+ 4
23	31	0.01	.01	1468	0	1	25		12	0
24	95 Jan. 1	.01	− .01	1496	− 1	+ 1	27		12	− 1
25	7	− .01	+ .02	1543	0	− 1	30		10	5
26	12	+ .11	+ .20	1508	+ 6	− 14	30		9	9
27	15	0.00	0.00	−1464	0	0	− 7	0	+ 8	− 11

TABLE VII (Continued).

ι PERSEI.

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	$-2s$			s							
1	− 522	−1.03	−0.64	+0.12	+ 16	1.3	+10	27	27	1.5	
2	542	1.00	.80	+ .32	+ 35	1.8	+32	25	25	4	
3	495	0.96	.91	− .15	− 11	1.5	− 8	25	25	3	2
4	480	.95	.95	− .30	− 26	1.7	−22	22	25	4	4
5	534	.93	.98	+ .24	+ 28	1.6	+22	25	25	2	4
6	417	.92	.98	−0.93	− 88	1.5	−66	20	25	3	3
7	654	.92	0.99	+1.44	+150	0.8	+60	25	23	1	1
8	471	.91	1.00	−0.39	− 34	1.2	−20	25	24	3.5	3
9	543	.90	1.00	+ .33	+ 38	1.7	+32	25	25	3	3.5
10	483	.90	1.00	− .27	− 22	2.0	−22	25	25	5	5
11	− 509	−0.89	−1.00	−0.01	+ 4	1.8	+ 4	25	25	5	4
							+ 2				
12	− 558	−0.35	+0.97	+0.48	+ 63	1.0	+32	25	10	5	5
13	654	.35	.96	+1.44	+159	0.5	+40	25	13	3	3
14	480	.33	.93	−0.30	− 15	2.0	−15	25	25	5	4.5
15	508	.32	.91	−0.02	+ 13	1.6	+10	15	25	4.5	4
16	616	.30	.86	+1.06	+121	1.2	+73	25	22	3.5	3
17	478	.29	.79	−0.32	− 16	1.7	−14	25	25	2	3
18	511	.28	.78	+ .01	+ 17	2.0	+17	25	25	4	4.5
19	429	.28	.77	− .81	− 65	1.8	−59	25	25	3.5	4
20	498	.27	.72	− .12	+ 4	1.3	+ 3	16	16	2	3.5
21	− 473	−0.27	+0.71	−0.37	− 22	1.4	−16	25	25	3.5	3.5
							+ 7				
22	− 552	−0.01	−0.72	+0.42	+ 61	0.8	+24	20	21	1	0.5
23	480	.00	.79	− .30	− 11	2.0	−11	25	25	4.5	4.5
24	512	+ .01	.80	+ .02	+ 20	2.0	+20	25	25	5	5
25	569	.02	.86	+ .59	+ 77	1.6	+62	25	23	3	3
26	546	.04	.91	+ .36	+ 55	1.0	+28	25	24	2	1
27	− 474	+0.04	−0.93	−0.36	− 18	1.9	−17	25	25	4	4.5

16 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
28	'95, Jan. 16.3	0.00	0.00	—1460	0	0	— 7	0	+ 8	—12
29	24	.00	—14.52	2525	0	+1041	10		5	17
30	26	— .17	— 0.17	1477	— 9	+ 12	8		4	18
31	27	+ .51	+ 0.51	1447	+ 27	— 37	14		4	19
32	28	.00	— 6.74	1931	0	+ 483	12		4	20
33	29	.00	0.00	1376	0	0	9		3	21
34	30	.00	.00	1456	0	0	11		3	21
35	Feb. 1	.00	.00	1455	0	0	14		2	23
36	3.2	.00	.00	1526	0	0	13		+ 1	24
37	8	0.00	0.17	1398	0	12	11		— 1	28
38	9	—27.36	5.52	434	—1434	397	12		1	28
39	10	— 5.11	—13.40	—2311	— 268	+ 961	—14	0	— 2	—29

1. Images breaking at times. 7. Star 41, f, very diffuse. 8. Star 41, image diffuse and breaking at times. 12. Star 41, fff; daylight illumination. 13. Star 41, fff; some threads lost. 15. Clouds near? 16. Star 41, ff. 20. Star 39, image very unsteady. 21. Star 41, f; image breaking at times. 21. Very poor observation; stars invisible on some threads. 26. Star 41, ff.

Normal Equations.

$$+91.07\,x - 29.76\,y - 44.40\,z - 12.29 = 0$$
$$-29.76\,x + 25.97\,y + 15.55\,z + 1.63 = 0$$
$$-44.40\,x + 15.55\,y + 75.51\,z + 5.33 = 0$$

STARS 42, 43, 44.

		s	s	—35s						
1	'93, Dec. 31.4	— 9.02	—14.58	— 635	+ 99	—230	+ 5	0	+ 9	+106
2	94 Jan. 13.3	+ 7.25	0.06	658	— 80	1	5		10	102
3	18	— 0.02	12.87	538	0	203	4		11	101
4	26	0.02	7.34	527	0	116	6		12	99
5	Feb. 1	— 8.11	21.52	505	+ 89	340	8		13	96
6	5	+ 3.92	— 3.45	659	— 43	— 55	3		13	95
7	7	+ 7.30	+ 7.30	— 725	— 80	+115	+ 2	0	+13	+ 94

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
28	—471	+0.05	—0.93	—0.39	— 20	1.5	—15	25	25	2.5	2.5
29	506	.07	.97	— .04	+ 15	1.8	+14	25	17	5	5
30	496	.07	.98	— .14	+ 5	1.3	+ 6	24	24	3	2
31	486	.08	.98	— .24	— 5	0.8	— 2	24	24	3	2
32	476	.08	.99	—0.34	— 15	1.6	—12	25	21	3	3
33	403	.08	.99	—1.07	— 88	1.7	—74	25	25	3.5	3.5
34	485	.08	0.99	—0.25	— 6	1.7	— 5	25	25	4	3.5
35	490	.09	1.00	— .20	— 1	1.5	— 1	25	25	2	3
36	562	.10	1.00	+ .52	— 71	1.6	—57	25	25	3.5	3.5
37	426	.11	1.00	— .84	— 64	1.4	—45	25	24	2.5	2.5
38	512	.11	1.00	+0.02	+ 22	1.4	+15	10	22	4.5	4.5
39	—663	+0.11	—1.00	+1.53	+173	0.5	+43 — 2	21	16	3	1.5

31. Star 40, image breaking at times; star 41, f. 36. Star 41, fainter than usual. 37. Star 41, ff.
39. Star 39, ff; lost on some threads; daylight illumination.

Assumed $D\alpha$ 1895.0 $= -2^s.510$ $\quad d.D\alpha = +0^s.019$ $\quad p_z = 53.79$

$x = +0.187$ $\quad d.D\mu = +0.015$ $\quad [pmn.3] = 0.1754$

$y = +0.146$ $\quad [pvv] = .1752$

$z = +0.009$ $\quad \pi = 0''.00 \pm 0''.033$ $\quad r = \pm 0^s.024$

Stars 39 and 40. $d.\Delta\mu = +0^s.010$, $\pi = +0''.04 \pm 0''.041$, $r_1 = \pm 0''.14$; 39 obs.

LALANDE 6888-9 *prec.*

	—35^s			^{s}							
1	—646	—1.00	—0.69	+0.46	+ 55	1.5	+42	14	17	4.5	
2	622	0.96	.84	+ .22	+ 32	1.3	+21	15	19	3	3
3	625	.95	.88	+ .25	+ 34	1.3	+22	11	18	4	4
4	526	.93	.94	— .74	— 64	1.3	—42	11	15	4	4
5	639	.91	.97	+ .39	+ 49	0.9	+22	6	13	4	2.5
6	646	.90	.98	+ .46	+ 55	1.3	+36	13	17	4	3
7	—581	—0.89	—0.99	—0.19	— 10	1.4	— 7 +13	15	15	4.5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
8	'94, Sept. 1.7	— 2.96	—11.89	— 336	+ 33	—188	+ 8	0	0	+ 35
9	10	12.25	15.72	504	135	248	8		0	32
10	17	0.05	7.37	451	1	116	6		— 1	30
11	18	.05	7.37	461	0	117	6		1	30
12	19	— 0.05	7.37	483	+ 1	116	6		1	30
13	23	+ 5.58	1.77	536	— 61	28	7		1	29
14	24	— 0.05	7.37	624	+ 1	116	7		2	29
15	27.6	2.08	7.37	516	23	117	6		2	28
16	28	12.77	18.33	609	140	290	6		2	27
17	30	— 1.66	— 9.05	— 604	+ 18	—143	+ 6	0	— 2	+ 27
18	95 Jan. 1.4	+ 5.79	— 2.03	— 429	— 64	— 32	+ 9	0	+ 2	— 1
19	12.3	—12.57	13.73	629	+ 138	217	10	— 1	3	3
20	15	+ 0.04	7.28	546	0	115	2	0	4	4
21	16	0.04	7.28	490	0	115	3	1	4	5
22	26	2.91	— 4.18	382	— 32	— 66	3	0	5	7
23	29	+ 7.31	+ 0.67	521	— 80	+ 11	3	1	6	8
24	30	— 1.57	— 8.96	490	+ 17	—142	3	0	6	9
25	Feb. 3	+ 7.31	0.00	437	— 80	0	4	1	6	10
26	8	5.27	4.04	526	58	64	4	0	6	12
27	9	3.93	3.44	568	43	54	4	1	6	12
28	10	7.31	0.00	487	80	0	4	0	6	12
29	14.2	+ 7.31	0.00	482	— 80	0	5	— 1	7	14
30	15	—21.75	—27.36	— 405	+ 239	—432	+ 6	0	+ 7	— 14
31	95 Sept. 25.6	+ 1.96	— 5.42	— 466	— 22	—86	— 7	0	— 9	— 78
32	29	5.55	12.80	298	61	202	6		9	79
33	30	+ 3.25	3.27	437	— 36	52	6		9	80
34	1	— 0.08	— 7.40	— 561	+ 1	—117	— 6	0	— 9	— 80

TABLE VII (Continued).

No.	*Da* 1895.0	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
8	— 448	—0.33	+0.98	—1.52	—164	0.6	—49	7	11	3	3
9	577	.30	.93	—0.23	— 36	1.0	—18	8	10	3.5	3
10	531	.29	.88	— .69	— 81	1.3	—52	11	15	3	3
11	543	.28	.87	— .57	— 69	1.4	—48	11	15	5	4
12	563	.28	.87	— .37	— 49	1.4	—34	11	15	4	4
13	590	.27	.83	—0.10	— 22	1.5	—16	14	18	3	4
14	705	.27	.82	+1.05	+ 93	1.4	+65	11	15	4	4
15	578	.26	.79	—0.22	+ 33	1.5	+24	12	15	5	5
16	728	.26	.78	+1.28	+115	0.5	+29	12	15	3	1.5
17	— 698	—0.25	+0.75	—0.98	+ 85	1.2	+51	10	14	4.5	3
							— 5				
18	— 515	+0.01	—0.69	—0.85	— 92	0.7	—32	13	17	4	4
19	699	.03	.83	+ .99	+ 91	0.4	+18	12	11	2	0.5
20	659	.04	.86	+ .59	+ 51	1.3	+33	11	15	4	4
21	604	.05	.87	+0.04	— 4	1.2	— 3	11	15	3	3
22	479	.07	.94	—1.21	—128	0.5	—32	12	15	3	2
23	590	.08	.96	—0.10	— 17	1.5	—12	15	18	4	4
24	615	.08	.96	+ .15	+ 8	1.3	+ 5	10	14	4	4
25	518	.10	.98	— .82	— 90	1.4	—63	15	19	3.5	3.5
26	650	.11	.99	+ .50	+ 42	1.0	+21	12	15	3	2
27	668	.11	0.99	+ .68	+ 60	1.5	+45	13	17	4.5	4.5
28	569	.11	1.00	— .31	— 39	1.6	—31	15	19	4.5	4.5
29	565	.13	1.00	— .35	— 43	1.6	—34	15	19	4.5	4.5
30	— 599	+0.13	—1.00	—0.01	— 9	1.2	— 6	7	10	5	5
							— 7				
31	— 668	+0.74	+0.81	+0.68	+ 38	1.3	+25	12	16	4	3
32	655	.75	.77	+ .55	+ 25	1.3	+16	14	12	4.5	4
33	620	.75	.75	+0.20	— 10	1.1	— 6	11	14	4	2.5
34	— 772	+0.75	+0.74	+1.72	+142	1.1	+78	11	15	4	2.5
							+28				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
35	'96, Jan. 14.3	+ 7.19	−0.12	− 399	− 79	− 2	− 5	−1	− 4	−110
36	29	3.81	7.40	376	42	117	8	1	3	115
37	Feb. 1	7.19	0.12	405	79	2	8	1	3	116
38	5	1.96	5.42	361	22	86	8	1	2	117
39	8	7.19	0.12	443	79	2	7	1	2	118
40	11	6.11	1.81	448	67	29	7	1	1	119
41	13	7.19	0.12	393	79	2	7	1	1	119
42	14.2	1.96	3.99	369	22	63	7	1	1	120
43	15	+ 5.84	−1.58	− 400	− 64	− 25	− 7	−1	− 1	−120

8. Star 43, ff; lost on some threads. 9. Stars 42 and 44, f; star 43, ff. 16. Star 43, f; very diffuse. 18. Star 43, ff; one thread rejected. 19. Stars invisible on some threads,

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.25	8.30	8.00	2
5th	7.46	8.30	7.80	5

Normal Equations.

$+66.00\,x + 5.79\,y - 25.09\,z + 7.34 = 0$

$+ 5.79\,x + 31.09\,y - 6.41\,z + 5.64 = 0$

$-25.09\,x - 6.41\,y + 54.00\,z - 0.86 = 0$

STARS 45, 46, 47.

				$-47s$						
		s	s							
1	'93, Dec. 31.4	+ 1.86	− 1.90	−1218	− 48	− 30	−11	0	−13	+280
2	94 Jan. 13.3	+ 1.86	3.66	1050	− 48	57	11		13	269
3	18	− 0.06	5.58	1080	+ 2	87	10		14	266
4	26	5.36	5.36	1263	138	84	14		15	260
5	Feb. 1	1.69	7.23	1098	44	113	18		16	255
6	5	7.29	12.82	1202	188	200	8		17	252
7	7	1.37	5.98	1007	35	93	6		17	249
8	16	−8.48	−14.49	− 916	+219	−226	−16	0	−19	+244

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
35	— 600	+1.04	—0.84	0.00	— 25	1.7	—21	15	19	5	5
36	662	1.08	.96	+ .62	+ 37	1.4	+26	13	15	4.5	4.5
37	614	1.09	.97	+ .14	— 11	1.4	— 8	15	19	3.5	3.5
38	597	1.10	.98	— .03	— 28	0.7	—10	12	16	3.5	3.5
39	652	1.11	0.99	+ .52	+ 27	1.4	+19	15	19	4	3
40	672	1.12	1.00	+ .72	+ 47	0.8	+19	13	17	2	0.5
41	602	1.12	1.00	+ .02	— 23	1.4	—16	15	19	4.5	3
42	583	1.13	1.00	— .17	— 42	0.7	—15	12	14	3	3
43	— 618	+1.13	—1.00	+0.18	— 7	1.1	— 4	14	18	3	2
							— 1				

22. Star 43, image disappearing at times. 24. Bar of screen frame in front of objective on star 42; removed for stars 43 and 44. 33. Star 43, one thread rejected. 38. Star 43, fff; est'd mags.: 7.6, 8.8, 8.2; clouds? 42. Clouds; est'd mags.: 7.5, 8.8, 8.5.

Assumed $D\alpha$ 1895.0 = —35^s.600 $d.D\alpha$ = —0^s.012 p_z = 43.88

x = — 0.119 $d.D\mu$ = —0.017 $[pnn.3]$ = 0.1826

y = — 0.172 $[pvv]$ = 0.1796

z = — 0.060 π = —0″.04 ±0″.040 r = ±0^s.023

LALANDE 7443.

	—47^s			s							
1	—1040	—1.00	—0.64	+0.90	+ 82	1.8	+74	20	22	5	
2	910	0.96	.80	— .40	— 54	1.0	—27	20	23	2	1
3	923	.95	.85	— .27	— 42	1.5	—32	19	22	2.5	3
4	978	.93	.91	+ .28	+ 13	0.6	+ 4	16	16	2	1.5
5	946	.91	.95	— .04	— 21	1.4	—15	18	21	4	2.5
6	987	.90	.97	+0.37	+ 19	1.4	+13	15	18	3.5	3
7	839	.89	0.98	—1.11	—129	1.0	—64	18	20	4	4
8	— 714	—0.87	—1.00	—2.36	—254	0.5	—64	13	16	3	1
							—14				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	$D1$	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
9	'94, Sept. 17.7	— 7.89	—13.66	— 769	+204	—213	—14	0	—10	+ 81
10	18	11.01	11.01	1177	284	172	14		10	78
11	19	10.83	16.41	1013	279	256	14		9	78
12	23	—12.90	12.90	1004	+333	201	15		8	76
13	24	+ 0.54	5.95	817	— 14	93	16		8	76
14	27.6	—10.83	16.41	1015	+279	256	14		7	73
15	28	1.77	9.57	933	47	149	13		7	73
16	30	— 7.37	—12.90	—1013	+190	—201	—13	0	— 6	+ 70
17	95 Jan. 15.3	— 3.44	— 9.00	— 888	+ 89	—140	— 5	0	+10	— 11
18	16	0.00	5.52	899	0	86	5		10	14
19	26	7.28	12.81	831	188	200	6		9	20
20	27	3.52	3.52	997	91	55	10		9	22
21	30	— 3.79	9.58	862	+ 93	149	7		8	22
22	Feb. 9	+ 1.92	3.60	842	— 50	56	8		7	31
23	10	+ 1.92	3.60	826	— 50	56	10		7	31
24	14	—23.31	12.81	1322	+601	200	11		6	36
25	15	—12.68	—18.24	— 955	+327	—285	—14	0	+ 5	— 36
26	95 Sept. 25.6	— 7.40	—12.93	— 608	+191	—202	+12	0	+17	—204
27	29	0.12	5.64	674	3	88	12		18	207
28	30	7.40	12.93	613	191	202	12		19	209
29	Oct. 1	3.56	9.12	584	92	142	12		19	210
30	2	— 2.00	— 8.09	— 720	+ 52	—126	+12	0	+20	—211
31	96 Jan. 14.3	— 0.12	— 5.64	— 584	+ 3	— 88	+10	0	+35	—291
32	29	0.12	5.64	631	3	88	16		33	302
33	Feb. 1	7.40	12.93	776	191	202	17		32	304
34	8	0.12	5.64	659	3	88	16		31	311
35	11	— 0.12	— 5.64	— 526	+ 3	— 88	+16	0	+31	—314

TABLE VII (Continued).

No.	*Da* 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
9	— 721	—0.29	+0.91	—2.29	—181	0.6	—54	14	17	3	3
10	1011	.28	.91	+0.61	+109	1.0	+54	10	10	4.5	4.5
11	935	.28	.90	—0.15	+ 33	1.2	+20	13	16	3	3
12	819	.27	.87	—1.31	— 84	1.5	—63	18	18	4	4
13	872	.27	.86	—0.78	— 32	0.8	—13	16	19	4	3
14	940	.26	.83	— .10	+ 35	1.5	+26	13	16	4.5	4.5
15	982	.26	.82	+ .32	+ 77	1.1	+42	18	16	3.5	2
16	— 973	—0.25	+0.80	+0.23	+ 68	1.4	+47	15	18	3.5	3.5
							+ 7				
17	— 945	+0.04	—0.82	—0.05	— 12	1.4	— 8	17	20	3.5	3
18	994	.05	.83	+ .44	+ 37	1.7	+31	19	22	4	4
19	860	.07	.91	— .90	—100	1.4	—70	15	18	3	3
20	984	.08	.92	+ .34	+ 25	0.8	+10	12	12	3.5	3
21	934	.08	.94	— .16	— 26	1.2	—16	16	19	4.5	4
22	980	.11	.98	+ .30	+ 19	1.8	+17	20	23	4.5	4.5
23	966	.11	0.98	+ .16	+ 5	1.9	+ 5	20	23	5	5
24	962	.13	1.00	+ .12	+ 1	1.4	+ 1	12	18	4.5	4.5
25	— 958	+0.13	—1.00	+0.08	— 4	1.5	— 3	12	15	5	5
							— 4				
26	— 794	+0.74	+0.85	—1.56	—103	0.7	—36	15	18	3.5	2.5
27	936	.75	.81	—0.14	+ 38	1.6	+30	19	22	4.5	4
28	802	.75	.80	—1.48	— 97	1.3	—63	15	18	3.5	2
29	813	.75	.79	—1.37	— 86	1.3	—56	17	20	4	2.5
30	— 973	+0.76	+0.78	+0.23	+ 74	0.7	+26	16	19	2.5	2.5
							—20				
31	— 915	+1.04	—0.81	—0.35	— 35	1.9	—33	19	22	5	5
32	969	1.08	.93	+ .19	+ 15	1.8	+14	19	22	4.5	4.5
33	1042	1.09	.95	+ .92	+ 89	1.4	+62	15	18	3.5	3.5
34	1008	1.11	.98	+ .58	+ 54	1.5	+40	19	22	4	3
35	— 878	+1.12	—0.99	—0.72	— 77	1.4	—54	19	22	2.5	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	${}_1C.c_1'$	${}_2C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
36	'96, Feb. 13.3	— 5.42	—10.97	— 659	+ 140	— 171	+16	0	+30	—315
37	15	1.02	1.02	767	26	16	15		30	316
38	21.2	— 7.40	—12.93	— 743	+ 191	— 202	+14	0	+29	—321

2, 7. Star 46, f. 4. Images breaking at times. 8. Star 45, ff; clouds. 9. Star 46, fff. 10, 11. Star 46, ff. 13. Star 46, f, image breaking at times; lost at some threads. Star 47, fine image. 20, 21, 26. Star 46, ff. 22. Star 46, f. 30. Star 46, difficult to observe. 36. Clouds. Est'd mags.: 7.0, 8.5, 7.2. 37. Star 46, images breaking frequently. 38. Star 46, ff; daylight illumination.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	6.70	8.55	6.95	4
5th	6.75	8.32	6.85	4

Normal Equations.

$+65.77\,x + 9.85\,y - 28.42\,z - 4.61 = 0$

$+ 9.85\,x + 34.29\,y - 6.71\,z - 2.15 = 0$

$-28.42\,x - 6.71\,y + 52.55\,z - 11.12 = 0$

These stars were omitted in the observations of 1895, Jan. 29.3, on account of the extremely poor condition of the images; similarly with regard to 1895, Feb. 3.3.

STARS 48, 50, 52.

				−20s						
		s	s							
1	'93, Dec. 31.4	— 0.06	— 0.06	— 734	0	0	0	0	0	—289
2	94 Jan. 13.3	+ 5.46	+ 1.71	684	— 18	+ 5	0		+ 1	276
3	18	+ 5.46	— 0.06	750	— 18	0	0		1	274
4	26	— 0.06	0.06	787	0	0	0		1	268
5	Feb. 1	0.01	5.53	733	0	— 16	— 1		1	262
6	16	18.32	5.60	753	+ 60	16	0		1	251
7	19	0.08	5.60	807	0	16	0		1	248
8	20	7.36	7.36	717	24	— 21	0		1	248
9	23.2	0.08	0.08	782	0	0	1		1	245
10	24	— 0.47	— 0.08	— 781	+ 2	0	— 1	0	+ 1	—245
11	94 Sept. 10.7	+ 1.60	+ 1.60	— 753	— 5	+ 5	— 1	0	— 2	— 88
12	17	+ 5.29	— 7.37	814	— 17	— 21	0		2	82
13	18	— 7.37	—12.90	— 854	+ 24	— 37	— 1	0	— 1	— 82

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1 m_2	Images.
				s					
36	— 959	+1.12	—0.99	+0.09	+ 4	1.3	+ 3	16 19	4 3
37	1028	1.00	1.00	+0.78	+ 73	0.5	+18	11 11	2 0.5
38	—1032	+1.14	—1.00	+0.82	+ 77	0.9	+35	15 18	4.5 4.5
							+11		

Assumed $D\alpha$ 1895.0 = —47.950 $d.D\alpha$ = +0.020 p_z = 40.09

x = + 0.203 $d.D\mu$ = +0.007 $[pnn.3]$ = 0.2348

y = + 0.069 $[pvv]$ = 0.2390

z = + 0.330 π = +0".21 ±0".055 r = ±0s.028.

	Obs. 1—25.	Obs. 26—38.
y = +0s.0692 ($d.\Delta\mu$ = +0s.007) adopted from the complete solution.		
$d.D\alpha$	+0s.012	+0s.033
π	+0".12 ±0".068	+0s.37 ±0".096
r	±0s.027	±0s.029

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	—20s			s					
1	—1023	—1.00	—0.60	+0.23	+ 18	1.7	+15	19 19	4.5
2	972	0.96	.77	— .28	— 41	0.8	—16	22 24	0.5 0.5
3	1041	.95	.82	+ .41	+ 26	1.3	+17	22 25	2 2
4	1054	.93	.89	+ .54	+ 36	1.0	+18	19 25	2 2
5	1011	.91	.93	+ .11	— 9	1.2	— 5	19 22	3 2
6	959	.87	0.99	— .41	— 65	1.0	—32	15 22	3 1
7	1070	.86	1.00	+ .70	+ 46	1.0	+23	19 22	2 0.5
8	961	.86	1.00	— .39	— 63	0.8	—25	15 15	0.5 0.5
9	1027	.85	1.00	+ .27	+ 2	1.6	+ 2	19 25	2.5 3.5
10	—1024	—0.85	—1.00	+0.24	— 1	1.4	— 1	16 19	4.5 3
							+ 1		
11	— 844	—0.30	+0.97	—1.56	— 99	0.7	—35	18 18	3 2
12	936	0.29	0.93	—0.64	— 9	1.2	— 5	8 15	2.5 3
13	— 951	—0.28	+0.93	—0.49	+ 6	1.4	+ 2	15 18	3.5 3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
14	'94, Sept. 19.7	+ 5.43	+ 5.43	— 805	— 18	+ 16	0	0	— 2	— 81
15	23	— 0.09	— 0.09	806	0	0	— 1		1	78
16	24	0.09	0.09	1004	0	0	1		2	78
17	27	— 3.53	— 9.09	865	+ 12	— 26	0		1	75
18	28	+ 1.49	+ 1.49	935	— 5	+ 4	0		2	75
19	30	— 0.09	— 0.09	— 919	0	0	— 1	0	— 2	— 72
20	95 Jan. 15.4	0.00	+ 5.52	—1132	0	+ 16	0	0	+ 2	+ 12
21	16.3	— 3.44	0.00	1091	+ 11	0	0		2	14
22	24	0.00	.00	1016	0	0	0		2	20
23	27	.00	.00	1009	0	0	— 1		2	23
24	29	.00	.00	997	0	0	0		2	23
25	30	.00	.00	1128	0	0	0		2	24
26	Feb. 3	.00	.00	1082	0	0	1		2	29
27	8	.00	.00	1018	0	0	0		2	32
28	9	.00	.00	1048	0	0	0		2	32
29	10	.00	.00	1086	0	0	0		2	32
30	14	.00	.00	1059	0	0	1		2	36
31	15	.00	.00	1060	0	0	0		2	37
32	18	+ .08	+ .08	1017	0	0	1		2	40
33	19	+ 0.08	— 0.82	1056	0	— 2	0		2	40
34	22.2	— 5.44	— 5.44	1098	+ 18	— 16	0		2	42
35	23	+ 0.08	+ 0.08	1157	0	0	1		2	43
36	24	—23.23	—12.73	1075	+ 77	— 37	0		2	44
37	25	+ 0.08	+ 0.08	—1022	0	0	— 1	0	+ 2	+ 45
38	95 Sept. 25.7	—16.44	— 5.64	—1206	+ 54	— 16	0	0	— 1	+212
39	29.6	0.12	0.12	1211	0	0	0		0	215
40	30	0.12	0.12	1249	0	0	+ 1		0	216
41	Oct. 1	— 0.12	— 0.12	1226	0	0	0		0	217
42	2	+ 0.78	+ 0.78	—1134	— 3	+ 2	+ 1	0	0	+218

TABLE VII (Continued).

No.	$D\alpha$ 1895.0	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
14	— 890	—0.28	+0.92	—1.10	+ 44	1.0	+22	22	22	2.5	2
15	886	.27	.89	—1.14	— 61	1.5	—46	19	19	2	3
16	1085	.27	.88	+0.85	+138	0.5	+34	19	19	3	3
17	955	.26	.86	— .45	+ 7	1.5	+ 5	17	20	3	3
18	1013	.26	.85	+ .13	+ 63	1.1	+35	18	18	2	1.5
19	— 994	—0.25	+0.83	—0.06	+ 43	1.7	+37	19	19	4.5	4.5
							+ 5				
20	—1102	+0.04	—0.79	+1.02	+ 75	1.4	+52	19	22	3	2.5
21	1064	.05	.80	+0.64	+ 36	1.3	+23	17	19	3	2.5
22	994	.07	.87	— .06	— 37	1.6	—29	19	19	4.5	4.5
23	985	.08	.90	— .15	— 47	1.5	—35	19	19	3.5	3.5
24	972	.08	.91	—0.28	— 61	1.4	—43	19	19	2.5	3
25	1102	.08	.92	+1.02	+ 69	1.3	+45	19	19	4.5	4.5
26	1052	.10	.95	+0.52	+ 17	1.2	+10	19	19	2.5	2
27	984	.11	.97	— .16	— 52	1.4	—36	19	19	3	2.5
28	1014	.11	.98	+ .14	— 22	1.5	—18	19	19	4	3
29	1052	.11	.99	+ .52	+ 16	1.7	+14	19	19	4.5	4.5
30	1022	.13	0.99	+ .22	— 16	1.7	—14	19	19	4.5	4.5
31	1021	.13	1.00	+ .21	— 17	1.7	—14	19	19	4.5	5
32	976	.14	1.00	— .24	— 62	1.6	—50	19	19	4	4
33	1016	.14	1.00	+ .16	— 22	1.7	—19	19	18	4.5	4.5
34	1051	.15	1.00	+0.51	+ 13	1.8	+12	22	22	4.5	4.5
35	1113	.15	1.00	+1.13	+ 75	1.8	+68	19	19	5	5
36	989	.15	1.00	—0.11	— 49	1.0	—24	12	18	3	2
37	— 976	+0.16	—1.00	—0.24	— 62	1.8	—56	19	19	4.5	5
							— 6				
38	— 957	+0.74	+0.87	—0.43	— 5	1.5	— 4	16	22	4	3
39	996	.75	.84	— .04	+ 33	1.4	+13	19	19	3.5	3
40	1032	.75	.83	+ .32	+ 68	0.8	+27	19	19	3	0.5
41	1009	.75	.82	+ .09	+ 45	1.0	+22	19	19	4	1
42	— 916	+0.76	+0.81	—0.84	— 49	1.6	—39	18	18	4.5	4
							+ 4				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
43	'96, Jan. 29.3	— 0.12	—0.12	—1355	0	0	+ 1	0	+ 3	+311
44	Feb. 1	.12	.12	1319	0	0	0		3	313
45	8	.12	.12	1366	0	0	1		3	319
46	15	.12	.12	1289	0	0	+ 1		3	325
47	20	— 0.12	—0.12	1489	0	0	0		3	329
48	21	+ 5.40	+5.40	1410	— 18	+ 2	0		3	329
49	23	—15.95	—0.12	—1440	+ 53	0	0	0	+ 4	+331

2. Illumination too dim; watched for entrance of the star disks upon threads. 4. Images breaking at times. 6. Through light clouds. 7. The differences between stars 48 and 50 on the three G threads rejected. The corresponding residuals with reference to the mean of all the 22 observed times, reduced to middle thread, for star 48, are —0s.66, —0s.65, and —0s.65 respectively; the largest residual of the remaining 19 observed times is +0s.17. 9, 10. Daylight illumination.

Epoch.	Estimated Magnitudes.*					No. of Ests.
4th	6.13	6.90	7.40	6.27	6.70	3
5th	6.09	6.94	7.40	6.27	6.56	7

Normal Equations.

$+91.97\,x + 7.89\,y - 46.50\,z + 13.85 = 0$

$+ 7.89\,x + 34.16\,y - 4.46\,z + 5.90 = 0$

$-46.50\,x - 4.46\,y + 79.09\,z - 32.03 = 0$

* Including stars 49 and 51.

STARS 49, 50, 51.

				+108s						
1	'93, Dec. 31.4	s — 1.74	s — 0.06	+1187	+ 6	0	+ 2	0	— 1	—288
2	94 Jan. 13	11.12	5.52	1167	37	—14	2		3	276
3	18	12.87	0.06	1119	42	0	2		4	274
4	26.3	9.06	18.30	1229	30	46	3		4	268
5	Feb. 1	7.23	12.82	1158	24	32	3		4	262
6	16	18.32	12.89	1140	60	32	3		5	251
7	19	12.89	10.93	994	43	27	3		5	248
8	20	5.84	7.36	1129	19	18	3		5	248
9	23.2	—18.32	— 5.60	+1059	+60	—14	+ 2	0	— 6	—245
10	94 Sept. 18.7	— 7.37	—18.33	+1003	+24	—46	+ 3	0	+12	— 81
11	19	— 7.37	+ 1.83	+1015	+24	+ 5	+ 2	0	+12	— 81

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
43	—1040	+1.08	—0.91	+0.40	— 7	1.5	— 5	19	19	3.5	3
44	1003	1.09	.93	+ .03	— 45	1.2	—27	19	19	3	2
45	1043	1.11	.97	+ .43	— 7	1.5	— 5	19	19	4.5	3
46	960	1.13	0.99	—0.40	— 91	0.8	—36	19	19	1.5	1
47	1157	1.14	1.00	+1.57	+106	1.1	+58	19	19	2	1.5
48	1094	1.14	1.00	+0.94	+ 43	1.9	+41	22	22	5	5
49	—1052	+1.15	—1.00	+0.52	0	1.0	0	10	19	2	1.5
							+ 4				

11. Star 50, fff; star 49, not seen. 14. Star 52, image very diffuse. 16. Star 52, image much disturbed in latter part of transit. 25. Clouds; star 52 fainter on F threads. 34, 35, 36, 37. Daylight illumination. 49. Daylight illumination; est'd mags., first four stars: 7.0. 7.8, 7.7, 7.0.

Assumed $D\alpha$ 1895.0 $= -21^s.000$ $\quad d.D\alpha = +0^s.009$ $\quad p_Z = 55.56$

$x = +0.088$ $\quad d\,D\mu = -0.014$ $\quad [pmn.3] = 0.1744$

$y = -0.135$ $\quad [pvv] = 0.1736$

$z = +0.449$ $\quad \pi = +0''.34 \pm 0''.042$ $\quad r = \pm 0^s.021$

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	+108^s			^{s}							
1	+ 906	—1.00	—0.60	—0.06	— 15	1.7	—13	18	19	4.5	
2	913	0.96	.77	— .13	— 27	0.8	—11	17	20	0.5	0.5
3	885	.95	.82	+ .15	— 1	1.3	— 1	18	19	2	2
4	944	.93	.89	— .44	— 62	1.0	—31	20	15	2	2
5	887	.91	.93	+ .13	— 5	1.2	— 3	21	18	3	2
6	915	.87	0.99	—0.15	— 35	1.0	—17	15	18	3	1
7	760	.86	1.00	+1.40	+120	1.0	+60	18	19	2	0.5
8	880	.86	1.00	+0.20	0	0.8	0	14	15	0.5	0.5
9	+ 856	—0.85	—1.00	+0.44	+ 24	1.6	+19	15	22	2.5	3.5
							— 1				
10	+ 915	—0.28	+0.93	—0.15	+ 24	1.4	+17	15	15	3.5	3
11	+ 977	—0.28	+0.92	—0.77	— 38	1.3	—25	15	20	2.5	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
12	'94, Sept. 23.7	— 3.53	— 0.09	+1053	+12	0	+ 3	0	+12	— 78
13	24	7.37	0.09	976	24	0	4		12	78
14	27	12.90	—12.90	973	43	—32	3		11	75
15	28	5.85	+ 1.49	903	19	+ 4	3		11	75
16	30	— 5.39	— 0.09	+ 928	+18	0	+ 3	0	+11	— 72
17	95 Jan. 15.4	— 7.28	0.00	+ 830	+24	0	+ 1	0	— 7	+ 12
18	16.3	7.28	— 1.57	817	24	— 4	1		7	14
19	24	5.30	0.00	915	17	0	1		8	20
20	27	7.28	0.00	907	24	0	2		8	23
21	29	3.44	0.00	829	11	0	1		8	23
22	30	5.30	5.30	773	17	13	1		9	23
23	Feb. 3	5.30	0.00	861	17	0	2		9	29
24	8	5.30	8.96	872	17	22	1		9	32
25	10	3.44	1.68	869	11	4	2		9	32
26	14	3.44	0.00	851	11	0	2		9	37
27	15	1.80	0.00	835	6	0	3		9	37
28	18	5.22	— 5.22	884	17	13	2		9	40
29	19	3.36	+ 0.08	855	12	0	3		9	40
30	22.2	12.73	—10.77	847	42	27	3		9	43
31	23	3.36	+ 0.08	808	11	0	3		9	43
32	24	18.16	—21.43	824	60	—54	2		9	43
33	25	— 5.22	+ 0.08	+ 856	+17	0	+ 3	0	— 9	+ 46
34	95 Sept. 25.7	—21.63	— 7.34	+ 701	+71	—18	— 3	0	+ 9	+212
35	29	7.40	0.12	705	24	0	3		8	215
36	30	5.40	.12	606	18	0	3		8	216
37	Oct. 1	3.56	— 0.12	701	12	0	2		8	217
38	2.6	— 2.76	+ 0.78	+ 741	+ 9	+ 2	— 3	0	+ 8	+218
39	96 Jan. 29.3	— 5.42	— 0.12	+ 593	+18	0	— 3	0	+11	+311

TABLE VII (Continued).

No.	*Da* 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
12	+1002	—0.27	+0.89	—1.02	— 64	1.5	—48	17	19	2	3
13	938	.27	.88	—0.38	0	1.0	0	15	19	4.5	4.5
14	923	.26	.86	— .23	+ 14	1.5	+10	18	18	3	3
15	865	.26	.85	+ .35	+ 72	1.1	+40	14	18	2	1.5
16	+ 888	—0.25	+0.83	+0.12	+ 49	1.7	+42	16	19	4.5	4.5
							+ 5				
17	+ 860	+0.04	—0.79	+0.40	+ 31	1.4	+22	15	19	3	2.5
18	845	.05	.80	+ .55	+ 46	1.3	+30	15	18	3	2.5
19	945	.07	.87	— .45	— 56	1.6	—45	16	19	4.5	4.5
20	948	.08	.90	— .48	— 60	1.5	—45	15	19	3.5	3.5
21	856	.08	.91	+0.44	+ 32	1.4	+22	17	19	2.5	3
22	792	.08	.92	+1.08	+ 95	1.3	+62	16	16	4.5	4.5
23	900	.10	.95	0.00	— 13	1.2	— 8	16	19	2.5	2
24	891	.11	.97	+ .09	— 4	1.4	— 3	16	14	3	2.5
25	901	.11	.98	— .01	— 14	1.7	—12	17	18	4.5	4.5
26	892	.13	.99	+ .08	— 6	1.7	— 5	17	19	4.5	4.5
27	872	.13	0.99	+ .28	+ 14	1.7	+12	18	19	4.5	5
28	921	.14	1.00	— .21	— 35	1.6	—28	16	16	4	4
29	901	.14	1.00	— .01	— 15	1.7	—13	17	19	4.5	4.5
30	899	.15	1.00	+ .01	— 13	1.8	—12	18	19	4.5	4.5
31	856	.15	1.00	+ .44	+ 30	1.8	+27	17	19	5	5
32	866	.15	1.00	+ .34	+ 20	1.0	+10	15	13	3	2
33	+ 913	+0.16	—1.00	—0.13	— 27	1.8	—24	16	19	4.5	5
							— 1				
34	+ 972	+0.74	+0.87	—0.72	— 29	1.5	—22	13	21	4	3
35	949	.75	.84	— .49	— 7	1.4	— 5	15	19	3.5	3
36	845	.75	.83	+ .55	+ 98	0.8	+39	16	19	3	0.5
37	936	.75	.82	— .36	+ 6	1.0	+ 3	17	19	4	1
38	+ 975	+0.76	+0.81	—0.75	— 33	1.6	—26	16	18	4.5	4
							— 2				
39	+ 930	+1.08	—0.91	—0.30	— 36	1.5	—27	16	19	3.5	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
40	'96, Feb. 1.3	− 3.56	− 0.12	+ 582	+12	0	− 3	0	+11	+313
41	8	3.56	.12	594	12	0	3		12	319
42	11	5.42	.12	547	18	0	3		12	322
43	15	3.56	.12	559	12	0	3		12	325
44	20	5.42	− 0.12	494	18	0	2		12	329
45	21	3.56	+ 5.40	486	12	+14	2		12	330
46	23.2	− 5.42	− 0.12	+ 428	+18	0	− 2	0	+12	+331

See also the notes accompanying the next preceding solution.

See preceding solution for estimated magnitudes.

Normal Equations.

$+88.96\,x + 11.40\,y - 44.52\,z - 0.39 = 0$

$+11.40\,x + 34.78\,y - 7.57\,z - 1.50 = 0$

$-44.52\,x - 7.57\,y + 76.07\,z - 15.47 = 0$

STARS 53, 54, 55.

				+10s						
		s	s							
1	'95, Jan. 24.3	−26.14	− 5.52	+ 238	+216	− 13	− 7	0	+ 1	0
2	27	0.00	0.00	522	0	0	11		1	0
3	30	− 0.20	− .20	565	+ 2	0	9		1	− 1
4	Feb. 3	+ 1.49	.00	531	− 12	0	11		+ 1	1
5	9	0.00	.00	555	0	0	11		0	1
6	10	− 1.09	.00	542	+ 9	0	11		0	1
7	14	0.00	.00	578	0	0	13		0	1
8	15	.00	.00	592	0	0	15		0	1
9	19	+ .08	+ .08	523	− 1	0	17		0	1
10	22	.08	.08	551	1	0	17		0	1
11	23	.08	.08	586	1	0	16		0	1
12	24	.08	.08	555	1	0	15		− 1	1
13	25	+ 0.08	+ 0.08	+ 600	− 1	0	−15	0	− 1	− 1

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
40	+ 915	+1.09	—0.93	—0.15	— 22	1.2	—13	17	19	3	2
41	934	1.11	.97	— .34	— 41	1.5	—31	17	19	4.5	3
42	896	1.12	.98	+ .04	— 4	1.3	— 3	16	19	3	2.5
43	905	1.13	0.99	— .05	— 13	0.8	— 5	17	19	1.5	1
44	851	1.14	1.00	+ .49	+ 41	1.1	+23	16	19	2	1.5
45	852	1.14	1.00	+0.48	+ 40	1.9	+38	17	22	5	5
46	+ 787	+1.15	—1.00	+1.13	+105	1.0	+52	16	19	2	1.5
							+ 4				

42. Star 52, no record of observation; chronograph sheet run out.

Assumed $D\alpha$ 1895.0 $= +108^s.900$ $\quad d.D\alpha = +0^s.014$ $\quad p_z = 53.69$

$x = +\ 0.142$ $\quad d.D\mu = +0.006$ $\quad [pnn.3] = 0.1360$

$y = +\ 0.060$ $\quad [pvv] = 0.1372$

$z = +\ 0.293$ $\quad \pi = +0''.22 \pm 0''.039$ $\quad r = \pm 0^s.019$

α TAURI.

	+10^s			^{s}							
1	+ 435	+0.07	—0.83	+0.85	+106	1.2	+64	9	22	4.5	4.5
2	512	.08	.86	+ .08	+ 29	1.4	+20	25	25	2	2
3	558	.08	.88	— .38	— 17	0.9	— 8	21	21	4	3.5
4	508	.09	.91	+ .12	+ 34	1.2	+20	23	25	1	1
5	543	.11	.95	— .23	— 1	2.0	— 1	25	25	5	4.5
6	539	.11	.96	— .19	+ 3	1.9	+ 3	24	25	4.5	4.5
7	564	.13	.97	— .44	— 21	1.8	—19	25	25	4	4
8	576	.13	.98	— .56	— 32	2.0	—32	25	25	5	5
9	504	.14	0.99	+ .16	+ 40	1.9	+38	25	25	4.5	4.5
10	532	.15	1.00	— .12	+ 12	1.8	+11	25	25	4	4
11	568	.15	1.00	— .48	— 24	2.0	—24	25	25	5	5
12	537	.15	1.00	— .17	+ 7	1.6	+ 6	25	25	2.5	2.5
13	+ 582	+0.16	—1.00	—0.62	— 38	2.0	—38	25	25	5	5
							+ 3				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
14	'95, Sept. 25.7	—0.12	— 0.12	+ 421	+1	0	+17	0	+19	— 5
15	29	.12	.12	477	1	0	17		19	5
16	30	.12	.12	496	1	0	15		20	5
17	Oct. 1	.12	.12	467	1	0	15		20	5
18	2	.12	.12	531	1	0	15		20	5
19	9.6	—0.12	— 0.12	+ 518	+1	0	+16	0	+20	— 5
20	96 Jan. 29.3	—0.12	— 7.34	+ 484	+1	—18	+20	0	+27	— 7
21	Feb. 1	.12	0.12	579	1	0	21		26	8
22	8	.12	0.12	474	1	0	20		26	8
23	20	.12	—12.93	492	1	—32	11		26	8
24	21	.12	+ 1.73	535	1	+ 4	10		26	8
25	23	.12	— 0.12	605	1	0	11		26	8
26	27.2	—0.12	+ 0.98	+ 461	+1	0	+15	0	+25	— 8

1. Star 53, image faint and diffuse; star 55, 8.3 mag.; clouds. 3. Star 54, fff; lost on some threads; star 53, components not clearly separate at times. Clouds. 7. Fine images but breaking at times.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	8.02	5.95	6.32	4
3d	7.72	6.00	6.17	6

Normal Equations.

$+69.82\,x + 35.61\,y - 41.92\,z - 15.92 = 0$

$+35.61\,x + 31.33\,y - 15.12\,z - 8.95 = 0$

$-41.92\,x - 15.12\,y + 62.22\,z + 13.52 = 0$

These stars not observed 1895, Jan. 29.3, on account of the extremely poor condition of the images.

STARS 56, 58, 60.

		s	s	+35s						
1	'95, Feb. 1.3	+27.35	+21.51	+1018	+ 90	— 75	+ 1	0	— 3	
2	8	19.77	18.09	954	65	63	0		3	
3	10	21.51	21.51	1065	71	75	1		3	
4	14	19.77	21.51	1071	65	75	0		3	
5	15	19.77	21.51	1117	65	75	1		3	
6	18	21.59	6.66	1008	71	23	1		3	
7	19	+18.32	+18.32	+1007	+ 60	— 64	+ 1	0	— 3	

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
14	+453	+0.74	+0.91	+0.67	+ 73	1.0	+36	25	25	3.5	1.5
15	509	.75	.88	+ .11	+ 18	1.2	+11	25	25	2	0.5
16	527	.75	.87	− .07	0	1.5	0	25	25	3	1
17	498	.75	.87	+ .22	+ 29	1.6	+23	25	25	3.5	3
18	562	.76	.87	− .42	− 35	2.0	−35	25	25	5	4.5
19	+550	+0.77	+0.80	−0.30	− 21	1.6	−17	25	25	3	2.5
							+ 3				
20	+507	+1.08	−0.87	+0.13	+ 46	1.6	+37	25	21	4	3
21	619	1.09	.90	− .99	− 65	1.8	−58	25	25	4.5	3
22	513	1.11	.95	+ .07	+ 42	1.5	+32	25	25	4	2
23	490	1.14	.99	+ .30	+ 66	1.3	+43	25	18	2.5	1
24	568	1.14	0.99	−0.48	− 12	1.8	−11	25	23	5	4.5
25	635	1.15	1.00	−1.15	− 79	1.6	−64	25	25	3.5	3
26	+494	+1.16	−1.00	+0.26	+ 62	1.6	+50	25	24	2.5	4
							+ 4				

14. Images very diffuse; star 53, appears simply elongated. 18. Star 53, the first date in this epoch that components have appeared clearly separate.

Assumed $D\alpha$ 1895.0 $= +10^s.520$ $\quad d.D\alpha = +0^s.009$ $\quad p_z = 34.07$

$x = + 0.088$ $\quad d.D\mu = +0.012$ $\quad [pnn.3] = 0.1105$

$y = + 0.124$ $\quad [pvv] = .1092$

$z = - 0.128$ $\quad \pi = -0''.09 \pm 0''.058$ $\quad r = \pm 0^s.023$

LALANDE 9091.

	+35^s			^{s}							
1	+1031	+0.09	−0.87	+0.29	+ 9	1.2	+ 6	10	13	2.5	3
2	953	.11	.92	+1.07	+ 89	0.8	+36	12	13	2.5	1.5
3	1059	.11	.93	+0.01	− 17	1.4	−12	13	13	4.5	4.5
4	1058	.13	.96	+ .02	− 15	1.1	− 8	12	13	2.5	2
5	1105	.13	.96	− .45	− 61	1.5	−46	12	13	5	5
6	1054	.14	.97	+ .06	− 10	0.9	− 4	13	5	2.5	2.5
7	+1001	+0.14	−0.98	+0.59	+ 43	1.5	+32	15	15	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
8	'95, Feb. 21.3	+11.17	+18.32	+1042	+ 37	— 64	+ 1	0	— 3	
9	22	18.32	18.32	1069	60	64	1		3	
10	24	21.59	21.59	1045	71	76	1		3	
11	25	+21.59	+21.59	+1038	+ 71	— 76	+ 1	0	— 3	
12	95 Sept. 29.7	+21.39	+21.39	+1105	+ 70	— 75	— 1	0	+ 2	
13	30	21.39	21.39	1042	70	75	1		2	
14	Oct. 1	21.39	21.39	1021	70	75	1		2	
15	2	21.39	21.39	1114	70	75	1		2	
16	9.6	21.39	16.22	1052	70	57	1		2	
17	11	15.71	21.39	1088	52	75	1		2	
18	13	21.39	17.77	973	70	62	1		2	
19	16	+21.39	+21.39	+1026	+ 70	— 75	— 1	0	+ 2	
20	96 Jan. 29.3	+18.12	+18.12	+1117	+ 60	— 63	— 1	0	— 4	
21	Feb. 1	18.12	18.12	1102	60	64	1		4	
22	11	18.12	18.12	1104	60	63	1		4	
23	15	18.12	18.12	1083	60	64	1		4	
24	20	18.12	18.12	1070	60	63	1		4	
25	21	16.67	18.12	1107	55	64	0		4	
26	23	18.12	18.12	1060	60	63	0		4	
27	27	18.12	18.12	1082	60	64	1		4	
28	28	18.12	18.12	1095	60	63	1		4	
29	Mar. 1.2	+18.12	+18.12	+1158	+ 60	— 64	— 1	0	— 4	

18. Observations interrupted on account of failure of chronograph to run. 21. Est'd mags. of stars 56, 57, 58, 59, and 60: 8.0, 8+, 8.0 to 8.5, 7.5, 8.2. Star 57 became fff during its transit. Sky becoming thick.

Epoch.	Estimated Magnitudes.†					No. of Ests.
2d	7.76	7.98	7.25	6.93	8.03	3
3d	7.56	7.78	7.20	6.63	7.75	5

† Including stars 57 and 59.

Normal Equations.

$+46.71\,x + 30.85\,y - 23.22\,z - 0.10 = 0$

$+30.85\,x + 29.26\,y - 13.05\,z - 3.56 = 0$

$-23.22\,x - 13.05\,y + 40.50\,z + 2.55 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
8	+1013	+0.14	—0.98	+0.47	+ 31	1.2	+19	11	15	2.5	2.5
9	1063	.15	.99	— .03	— 19	1.5	—14	15	15	4.5	4.5
10	1038	.15	.99	+ .22	+ 6	1.1	+ 3	13	13	2.5	2
11	+1031	+0.16	—0.99	+0.29	+ 14	1.5	+10	13	13	4.5	5
							+ 2				
12	+1101	+0.75	+0.91	—0.41	— 54	1.0	—27	13	13	2	1
13	1038	.75	.90	+ .22	+ 9	0.9	+ 4	13	13	3	0.5
14	1017	.75	.89	+ .43	+ 30	1.3	+20	13	13	2.5	3
15	1110	.75	.89	— .50	— 63	1.5	—47	13	13	4.5	4.5
16	1066	.77	.83	— .06	— 17	1.3	—11	13	16	4	3
17	1066	.78	.81	— .06	— 17	0.8	— 7	10	13	2.5	0.5
18	982	.79	.79	+ .78	+ 68	1.4	+48	13	11	5	5
19	+1022	+0.79	+0.75	+0.38	+ 28	1.4	+20	13	13	5	4
							0				
20	+1109	+1.08	—0.84	—0.49	— 27	1.3	—18	15	15	4	3
21	1093	1.09	.87	— .33	— 11	1.3	— 7	15	15	4.5	3
22	1096	1.12	.94	— .36	— 12	1.2	— 7	15	15	2.5	2.5
23	1074	1.13	.96	— .14	+ 12	1.3	+ 8	15	15	3.5	3
24	1062	1.14	.98	— .02	+ 24	1.3	+16	15	15	3.5	3.5
25	1094	1.14	.98	— .34	— 8	1.5	— 6	14	15	5	4.5
26	1053	1.15	0.99	+ .07	+ 34	1.3	+22	15	15	3.5	3.5
27	1073	1.16	1.00	— .13	+ 14	1.4	+10	15	15	4	4
28	1087	1.16	1.00	— .27	0	1.3	0	15	15	3.5	3.5
29	+1149	+1.17	—1.00	—0.89	— 61	1.1	—34	15	15	2	2
							— 2				

29. Daylight illumination; star 57, ff; found late, observed F_3—G_3. Star 59, image especially unsteady.

Assumed $D\alpha$ 1895.0 $= +36^s.060$ $\quad d.D\alpha = -0^s.034$ $\quad p_z = 28.37$

$x = -0.338$ $\quad d.D\mu = +0.042$ $\quad [pnn.3] = 0.0561$

$y = +0.424$ $\quad [pvv] = 0.0556$

$z = -0.120$ $\quad \pi = -0''.09 \pm 0''.044$ $\quad r = \pm 0^s.016$

Stars 56 and 58. $d.\Delta\mu = +0^s.025$, $\pi = -0''.04 \pm 0''.066$, $r_1 = \pm 0''.18$; 29 obs.

TABLE VII (Continued).

STARS 57, 59, 60.

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s	+19s						
1	'95, Feb. 1.3	—18.24	—18.24	+617	+261	—118	—15	0	+ 1	
2	8	29.12	21.51	427	416	139	13	0	+ 1	
3	10	18.24	18.24	774	261	118	15	0	0	
4	14	34.45	34.45	550	493	224	20	+1	0	
5	15	18.24	18.24	769	261	118	22	0	0	
6	18	18.45	18.45	593	264	120	23	0	0	
7	19	18.16	18.16	726	260	118	23	0	0	
8	21	27.28	27.28	498	390	177	23	1	0	
9	22	18.16	18.16	706	260	118	22	0	0	
10	23	7.20	7.20	804	103	47	20	0	0	
11	24	18.16	18.16	706	260	118	20	0	0	
12	25	—18.16	—18.16	+719	+260	—118	—21	+1	0	
13	95 Sept. 29.7	—18.36	—18.36	+571	+262	—119	+20	0	+28	
14	30	18.36	16.92	517	263	110	20	0	28	
15	Oct. 1	18.36	18.36	675	262	119	21	0	29	
16	2	18.36	18.36	516	263	119	21	0	29	
17	9.6	25.36	25.36	542	362	165	21	0	31	
18	11	18.36	18.36	590	263	119	24	0	31	
19	13	12.80	12.80	601	183	83	26	+1	31	
20	16	—18.36	—18.36	+651	+262	—119	+27	+1	+32	
21	96 Jan. 29.3	—18.36	—18.36	+609	+262	—119	+27	+1	+38	
22	Feb. 1	18.36	18.36	637	263	119	28	1	37	
23	8	0.12	0.12	693	2	1	27	0	37	
24	11	18.36	18.36	558	262	119	27	1	36	
25	15	18.36	18.36	637	263	119	24	0	36	
26	20	18.36	18.36	664	262	120	15	+1	36	
27	21	—18.36	—18.38	+580	+263	—119	+14	0	+35	

TABLE VII (Continued).

LALANDE 9109.

No.	*Da* 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+19^s			^{s}							
1	+746	+0.09	− 0.87	+0.44	+ 75	1.3	+49	15	15	2.5	3
2	692	.11	.92	+0.98	+129	0.9	+58	8	13	2.5	1.5
3	902	.11	.93	−1.12	− 80	1 5	−60	15	15	4.5	4.5
4	800	.13	.96	−0.10	+ 21	0.7	+ 7	6	6	2.5	2
5	890	.13	.96	−1.00	− 69	1.6	−55	15	15	5	5
6	719	.14	.97	+0.71	+102	1.2	+61	14	14	2.5	2.5
7	845	.14	.98	−0.55	− 24	1.5	−18	15	15	4.5	4.5
8	689	.14	.98	+1.01	+132	1.0	+66	10	10	2.5	2.5
9	826	.15	.99	−0.36	− 5	1.5	− 4	15	15	4.5	4.5
10	840	.15	.99	− .50	− 19	1.6	−15	15	15	5	5
11	828	.15	.99	− .38	− 7	1.2	− 4	15	15	2.5	2
12	+841	+0.16	−0.99	−0.51	− 20	1.6	−16 + 6	15	15	4.5	5
13	+762	+0.75	+0.91	+0.28	+ 20	1.0	+10	15	15	2	1
14	718	.75	.90	+ .72	+ 64	1.0	+32	15	14	3	0.5
15	868	.75	.89	− .78	− 86	1.3	−57	15	15	3.5	3
16	709	.75	.89	+ .81	+ 73	1.5	+55	15	15	4.5	4.5
17	791	.77	.83	− .01	− 9	1.1	− 5	11	11	4	3
18	789	.78	.81	+ .01	− 7	1.0	− 4	15	15	2.5	0.5
19	759	.79	.79	+ .31	+ 23	1 3	+15	12	12	5	5
20	+854	+0.79	+0.75	−0.64	− 71	1.4	−50 0	15	15	5	4
21	+818	+1.08	−0.84	−0.28	− 18	1.4	−13	15	15	4	3
22	847	1.09	.87	− .57	− 46	1.4	−32	15	15	4.5	3
23	758	1.11	.92	+ .32	+ 44	1.5	+33	25	25	4	2
24	765	1.12	.94	+ .25	+ 37	1.3	+24	15	15	2.5	2.5
25	841	1.13	.96	− .51	− 40	1.3	−26	15	15	3.5	3
26	858	1.14	.98	− .68	− 57	1.4	−40	15	15	3.5	3.5
27	+773	+1.14	−0.98	+0.17	+ 28	1.6	+21	15	15	5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
28	'96, Feb. 23.3	—18.36	—18.36	+585	+262	—119	+15	+1	+35	
29	27	18.36	18.36	612	263	119	21	0	35	
30	28	18.36	18.36	553	262	120	22	1	35	
31	Mar. 1.2	—36.19	—18.36	+399	+518	—119	+23	+1	+34	

For notes and estimated magnitudes see solution next preceding.

Normal Equations.

$$+53.69\,x + 35.20\,y - 30.16\,z - 8.17 = 0$$
$$+35.20\,x + 33.64\,y - 17.33\,z - 2.87 = 0$$
$$-30.16\,x - 17.33\,y + 46.93\,z + 9.46 = 0$$

The excess of the probable error for star 59 over that for star 58 was due for the most part, probably, to the shortness of the time interval between stars 56 and 57 and of that between stars 58 and 59. The unfavorable effect was probably increased in consequence of the cold weather in which the majority of the observations were made. A comparison of residuals is given on the opposite page.

STARS 61, 62, 63.

				+48s						
		s	s							
1	'94, Jan. 18.4	—10.84	— 0.06	+ 457	— 11	0	— 2	0	—11	+ 76
2	26	0.06	.06	585	0	0	3		12	74
3	Feb. 1.3	— 8.66	.01	541	— 9	0	4		11	73
4	20	+ 0.93	0.08	472	+ 1	0	4		12	69
5	21	—33.09	— 4.26	616	— 33	+ 2	4		11	68
6	22	3.85	+ 0.85	493	4	0	3		12	68
7	23	1.34	— .08	587	— 1	0	3		11	68
8	Mar. 1	0.08	.08	538	0	0	2		12	66
9	2	.08	.08	471	0	0	2		11	66
10	3	— 0.08	— 0.08	+ 439	0	0	— 2	0	—12	+ 66
11	94 Sept. 18.7	— 3.69	— 0.09	+ 501	— 4	0	— 4	0	+ 2	+ 23
12	19	0.09	0.09	493	0	0	4		1	22
13	23	—12.90	—12.90	+ 583	0	+ 6	— 4	0	+ 2	+ 22

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
28	+ 779	+1.15	—0.99	+0.11	+ 22	1.4	+15	15	15	3.5	3.5
29	812	1.16	1.00	— .22	— 11	1.4	— 8	15	15	4	4
30	753	1.16	1.00	+ .37	+ 49	1.4	+34	15	15	3.5	3.5
31	+ 856	+1.17	—1 00	—0.66	— 55	0.8	—22	5	15	2	2
							— 1				

Assumed $D\alpha$ 1895.0 $= +19^s.790$ $\quad d.D\alpha = +0^s.020$ $\quad p_z = 29.43$

$x = +0.202$ $\quad d.D\mu = -0.020$ $\quad [pmn.3] = 0.1551$

$y = -0.202$ $\quad [pvv] = 0.1556$

$z = -0.146$ $\quad \pi = -0''.11 \pm 0''.068$ $\quad r = \pm 0^s.025$

Stars 59 and 60. $d.\Delta\mu = -0^s.014$, $\pi = -0''.20 \pm 0''.080$, $r_1 = \pm 0''.21$; 31 obs.

Mean values of $\frac{1}{2}\sqrt{p}.v_1'$ without regard to sign.

		Star 58	Star 59
1st Epoch	February	0s.017	0s.034
2d Epoch	Sept.-Oct.	.023	.028
3d Epoch	February	.013	.024

WEISSE-BESSEL iv, 1189.

	+48s			s							
1	+ 509	—0.95	—0.69	+0.41	+ 49	0.8	+20	18	25	2	0
2	644	.93	.79	— .94	— 88	1.7	—75	25	25	3.5	3
3	590	.91	.85	— .40	— 36	1.3	—23	19	25	2	2
4	526	.86	.97	+ .24	+ 26	1.7	+22	24	25	3.5	3
5	638	.86	.98	— .88	— 87	0.5	—22	7	19	2	1
6	542	.85	.98	+ .08	+ 10	1.8	+ 9	22	22	4.5	4.5
7	640	.85	0.98	— .90	— 89	1.7	—76	24	25	3.5	3.5
8	590	.83	1.00	— .40	— 39	1.6	—31	25	25	3.5	3
9	524	.83	1.00	+ .26	+ 27	2.0	+27	25	25	5	5
10	+ 491	—0.83	—1.00	+0.59	+ 60	1.3	+39	25	25	3	3
							—11				
11	+ 518	—0.28	+0.98	+0.32	+ 72	1.4	+50	23	25	4	4
12	512	0.28	0.98	+0.38	+ 78	1.0	+39	25	25	2.5	1
13	+ 609	—0.27	+0.96	—0.59	— 20	1.4	—14	18	18	2	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
14	'94, Sept. 24.7	— 0.09	—25.33	+ 560	0	+ 13	— 4	0	+ 1	+ 22
15	27	0.09	0.09	549	0	0	3		2	21
16	28	16.41	3.69	483	— 16	+ 2	3		1	21
17	30	— 0.09	— 0.09	+ 639	0	0	— 3	0	+ 1	+ 20
18	95 Jan. 29.3	— 1.77	0.00	+ 488	— 2	0	— 2	+1	— 5	— 6
19	Feb. 3	0.00	.00	494	0		2	1	5	8
20	8	—10.85	.00	521	11		2	1	5	9
21	9	0.00	.00	590	0		2	1	5	9
22	14	.00	.00	539	0		3	1	5	10
23	15	.00	.00	567	0		4	0	5	10
24	19	+ 0.08	+ .08	571	0		4	1	5	11
25	21	—14.44	.08	627	— 14		4	1	5	11
26	22	+ 0.08	.08	568	0		4	1	5	12
27	23	.08	.08	589	0		3	+1	5	12
28	25	+ 0.08	+ 0.08	+ 550	0	0	— 4	0	— 5	— 13
29	95 Sept. 25.7	— 5.64	— 0.12	+ 504	— 6	0	+ 4	0	+ 8	— 58
30	29	9.12	5.64	596	9	+ 3	3	+1	8	59
31	Oct. 1	0.12	0.12	627	0	0	3	0	8	60
32	2	12.93	.12	722	13	0	3	0	8	60
33	8	0.12	.12	718	0	0	3	1	7	62
34	11.6	0.12	0.12	594	0	0	4	0	7	62
35	13	12.93	3.72	629	— 13	+ 2	4	1	7	63
36	16	— 0.12	— 0.12	+ 674	0	0	+ 4	+1	+ 7	— 63
37	96 Jan. 29.3	— 0.12	— 0.12	+ 585	0	0	+ 4	+1	+ 2	— 87
38	Feb. 1	3.55	.12	676	— 4		4	2	2	87
39	8	5.64	.12	639	— 6		4	1	2	89
40	11	0.12	.12	662	0		4	2	2	89
41	15	— 0.12	— 0.12	+ 607	0	0	+ 4	+1	+ 2	— 90

TABLE VII (Continued).

No.	Da 1895.0	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
14	+ 592	—0.27	+0.96	—0.42	— 3	1.5	— 2	25	11	5	5
15	569	.26	.94	—0.19	+ 20	1.7	+17	25	25	3.5	3.5
16	488	.26	.93	+0.62	+101	1.5	+76	16	23	4	3.5
17	+ 657	—0.25	+0.92	—1.07	— 69	1.7	—59	25	25	4	3 5
							+15				
18	+ 474	+0.08	—0.82	+0.76	+ 81	1.6	+65	24	25	3	3
19	480	.10	.87	+ .70	+ 74	1.4	+52	25	25	3	2.5
20	495	.11	.91	+ .55	+ 58	1.1	+32	19	25	2.5	1
21	575	.11	.91	— .25	— 22	1.7	—19	25	25	4.5	3.5
22	522	.13	.95	+ .28	+ 30	1.7	+26	25	25	3.5	3.5
23	548	.13	.95	+ .02	+ 3	2.0	+ 3	25	25	5	5
24	552	.14	.97	— .02	0	2.0	0	25	25	4.5	4.5
25	594	.14	.98	— .44	— 43	1.5	—32	17	25	3.5	3
26	548	.15	.98	+ .02	+ 3	2.0	+ 3	25	25	4.5	4.5
27	570	.15	.98	— .20	— 19	2.0	—19	25	25	4.5	4.5
28	+ 528	+0.16	—0.99	+0.22	+ 22	2.0	+22	25	25	4.5	5
							+12				
29	+ 452	+0.74	+0.95	+0.98	+136	0.8	+55	22	25	3	0.5
30	543	.75	.93	+0.07	+ 45	1.4	+32	20	22	3	2.5
31	578	.75	.91	—0.28	+ 9	0.8	+ 4	25	25	3	0.5
32	660	.76	.91	—1.10	— 73	1.9	—69	18	25	5	5
33	667	.77	.86	—1.17	— 81	1.7	—69	25	25	3.5	3
34	543	.78	.83	+0.07	+ 42	1.6	+34	25	25	2.5	2.5
35	567	.79	.81	—0.17	+ 18	1.8	+16	18	23	5	4.5
36	+ 623	+0.79	+0.78	—0.73	— 38	2.0	—38	25	25	4.5	4.5
							— 4				
37	+ 505	+1.08	—0.82	+0.45	+ 47	1.7	+40	25	25	3.5	3
38	593	1.09	.85	— .43	— 42	1.6	—34	23	25	3.5	2.5
39	551	1.11	.91	— .01	— 1	1.6	— 1	22	25	4.5	2.5
40	581	1.12	.93	— .31	— 32	1.4	—22	25	25	2.5	2
41	+ 524	+1.13	—0.95	+0.26	+ 25	1.5	+19	25	25	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
42	'96, Feb. 20.3	— 0.12	—0.12	+ 627	0	0	+ 2	+2	+ 2	— 91
43	21	.12	.12	613	0		2	1	2	91
44	23	.12	.12	628	0		2	1	2	92
45	27	.12	.12	658	0		3	2	3	92
46	28	0.12	.12	664	0		4	1	3	93
47	Mar. 1	— 5.64	—0.12	+ 625	— 6	0	+ 4	+2	+ 3	— 93

2. Star 61, no screen employed; no correction applied for absence of screen. 9. Daylight illumination. 10. Daylight illumination; star 61, ff. 11. Star 61, ff. 12. Star 61, ff, diffuse. 29. Images very diffuse. 31. Images very diffuse; est'd mags.: 8.5, 6.5, 7.5. 32, 38. Star 61, no screen employed; no correction applied for absence of screen. 46. Observed through light clouds.

Epoch.	Estimated Magnitudes.†			No. of Ests.
4th	8.17	6.30	7.23	7
5th	8.19	6.46	7.33	10

Normal Equations.

$+121.26\,x + 30.03\,y - 50.77\,z - 13.89 = 0$

$+ 30.03\,x + 68.89\,y - 9.11\,z - 3.07 = 0$

$- 50.77\,x - 9.11\,y + 105.65\,z - 11.11 = 0$

† Excluding dates on which star 61 was observed without the screen.

STARS 64, 65, 66.

				−32s						
		s	s							
1	'94, Jan. 18.4	— 0.06	— 0.06	—1488	+ 2	— 2	+12	0	+19	+ 15
2	Feb. 1.3	0.54	+ 0.08	1366	14	+ 3	21		22	14
3	15	0.08	— 0.08	1340	2	— 3	15		25	14
4	20	7.30	5.60	1326	186	220	21		27	14
5	22	5.60	24.39	706	143	956	16		27	14
6	23	6.25	10.46	1236	+160	410	16		27	14
7	Mar. 1	0.08	0.08	1466	0	3	13		29	14
8	2	0.08	0.08	1366	0	3	12		29	14
9	3	— 0.08	— 0.08	—1345	0	— 3	+ 8	0	+29	+ 14
10	94 Sept. 17.7	— 1.27	— 1.27	—1258	+ 32	—50	+17	0	+ 5	+ 5
11	18	— 0.09	— 0.09	—1365	+ 2	— 4	+17	0	+ 5	+ 4

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
42	+542	+1.14	−0.97	+0.08	+ 7	1.1	+ 4	25	25	2	0.5
43	527	1.14	.98	+ .23	+ 22	1.9	+21	25	25	4	4
44	541	1.15	.98	+ .09	+ 7	1.8	+ 7	25	25	3.5	3.5
45	574	1.16	0.99	− .24	− 26	1.9	−25	25	25	4	4
46	579	1.16	1.00	− .29	− 31	1.8	−28	25	25	3.5	3.5
47	+535	+1.17	−1.00	+0.15	+ 13	1.7	+11	22	25	4	4
							− 1				

Assumed $D\alpha$ 1895.0 = +48^s.550 x = + 0.201 y = − 0.017 z = + 0.201

$d.D\alpha$ = +0^s.020 $d.D\mu$ = −0.002

π = +0″.15 ±0″.042

p_z = 84.21 [pnn.3] = 0.2506 [pvv] = 0.2532 r = ±0^s.025

Obs. 1—28. Obs. 29—47.

y = −0^s.0173, adopted from the general solution.

$d.D\alpha$	+0^s.011	+0^s.029
π	+0″.08 ±0″.061	+0^s.21 ±0″.059
r	±0^s.027	±0^s.024

Stars 61 and 62. $d.\Delta\mu$ = +0^s.003, π = +0″.06 ± 0″.061, r_1 = ±0″.28; 47 obs.

α AURIGAE.

	−33^s			s							
1	− 442	−0.95	−0.66	+1.12	+101	1.0	+50	25	25	2	0.5
2	292	.91	.82	−0.38	− 51	0.7	−18	23	22	2.5	0
3	287	.87	.93	−0.43	− 59	1.4	−41	25	25	3	2.5
4	298	.86	.96	−0.32	− 48	1.5	−36	21	22	3.5	3
5	462	.85	.97	+1.32	+115	1.0	+58	22	8	5	5
6	429	.85	.97	+0.99	+ 82	0.8	+33	20	17	0	0
7	413	.83	.99	+ .83	+ 66	1.7	+56	25	25	3.5	3
8	314	.83	0.99	− .16	− 33	2.0	−33	25	25	5	5
9	− 297	−0.83	−1.00	−0.33	− 50	1.3	−32	25	25	3	2
							+ 4				
10	− 249	−0.29	+0.99	−0.81	− 85	1.3	−55	24	24	2.5	2
11	− 341	−0.28	+0.99	+0.11	+ 7	1.9	+ 7	25	25	5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
12	'94, Sept. 19.7	— 0.09	— 0.09	—1326	+ 2	— 3	+17	0	+ 5	+ 4
13	23	0.09	.09	1285	2	4	19		3	4
14	24	5.61	.09	1620	143	3	19		3	4
15	27	0.09	0.09	1383	2	4	16		3	4
16	28	0.09	16.41	710	2	643	16		2	4
17	30	— 1.63	— 1.63	—1225	+ 42	— 64	+15	0	+ 1	+ 4
18	95 Jan. 29.4	— 4.13	— 0.17	—1252	+105	— 7	+ 7	+1	— 8	— 1
19	Feb. 1.3	0.00	0.00	1429	0	0	11	1	8	1
20	3	1.01	5.40	959	26	212	11	1	7	2
21	9	0.00	0.00	1370	0	0	10	0	6	2
22	14	—12.81	—12.81	1228	+327	—502	13	1	4	2
23	15	0.00	0.00	1431	0	0	16	1	4	2
24	19	+ .08	+ .08	1418	— 2	+ 3	17	1	3	2
25	21	.08	.08	1357	2	3	17	0	3	2
26	22	+ 0.08	.08	1415	— 2	3	17	1	3	2
27	23	— 1.10	.08	1417	+ 28	3	14	1	2	2
28	25	+ 0.03	+ .08	1423	— 2	+ 3	14	+1	2	2
29	Mar. 5	— 0.02	— 0.02	—1255	+ 1	— 1	+17	0	— 0	— 3
30	95 Sept. 25.7	— 0.12	— 0.12	—1289	+ 3	— 5	—18	0	—27	— 12
31	29	.12	5.64	1087	3	221	15	0	28	12
32	Oct. 1	.12	0.12	1175	3	5	15	0	29	12
33	2	0.12	0.12	1343	3	5	16	0	29	12
34	8	3.72	3.72	1282	95	146	16	0	31	12
35	9	0.12	0.12	1321	3	5	16	0	31	13
36	11	.12	.12	1283	3	5	19	0	32	13
37	13	.12	.12	1344	3	5	20	—2	32	13
38	16.6	— 0.12	— 0.12	—1368	+ 3	— 5	—20	—1	—33	— 13

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{21}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
12	− 301	−0.28	+0.99	−0.29	− 33	1.7	−28	25	25	3	3
13	261	.27	.97	−0.69	− 73	1.8	−66	25	25	3.5	3.5
14	454	.27	.97	+1.24	+120	0.8	+48	22	25	3	3
15	362	.26	.96	+0.32	+ 27	2.0	+27	25	25	4.5	4.5
16	329	.26	.95	−0.01	− 6	1.7	− 5	25	16	4.5	4.5
17	− 227	−0.25	+0.94	−1.03	−108	0.6	−32	21	21	3	1
							−13				
18	− 155	+0.08	−0.79	−1.75	−209	1.0	−104	21	23	2	1
19	426	.09	.82	+0.96	+ 62	1.7	+54	25	25	3	3
20	142	.10	.84	−1.88	−222	0.8	−89	20	21	2	0
21	368	.11	.89	+0.38	+ 3	2.0	+ 3	25	25	4.5	4.5
22	395	.13	.93	+ .65	+ 29	1.7	+24	18	18	5	5
23	420	.13	.93	+ .90	+ 53	2.0	+53	25	25	5	5
24	404	.14	.96	+ .74	+ 37	2.0	+37	25	25	5	4.5
25	344	.14	.97	+ .14	− 23	1.7	−20	25	25	4	3
26	401	.15	.97	+ .71	+ 34	2.0	+34	25	25	5	5
27	375	.15	.97	+ .45	+ 8	2.0	+ 8	24	25	4.5	5
28	411	.16	0.98	+ .81	+ 44	2.0	+44	25	25	5	5
29	− 241	+0.18	−1.00	−0.89	−127	1.3	−82	25	25	3	2
							− 3				
30	− 348	+0.74	+0.97	+0.18	− 7	1.7	− 6	25	25	3.5	3.5
31	360	.75	.95	+ .30	+ 5	1.7	+ 4	25	22	5	4
32	233	.75	.93	− .97	−122	1.6	−97	25	25	3.5	2.5
33	402	.76	.93	+ .72	+ 45	1.6	+36	25	25	3	2.5
34	392	.77	.89	+ .62	+ 35	1.0	+18	23	23	3	0.5
35	383	.77	.88	+ .53	+ 26	1.7	+22	25	25	4	3
36	349	.78	.87	+ .19	− 8	1.9	− 8	25	25	3.5	4
37	413	.79	.85	+0.83	+ 56	1.9	+53	25	25	4.5	4
38	− 437	+0.79	+0.82	+1.07	+ 79	2.0	+79	25	25	5	4.5
							+11				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s							
39	'96, Feb. 1.3	— 0.12	— 0.12	—1176	+ 3	— 5	—21	—1	—37	— 17
40	8	.12	.12	1338	3	5	20	1	35	18
41		.04	.12	1368	1	4	12	1	32	18
42	21	.12	.12	1311	3	5	11	1	32	18
43	23	.12	.12	1282	3	5	11	1	32	18
44	27	0.12	.12	1305	3	4	16	2	30	19
45	Mar. 1	—10.97	— 0.12	—1607	+283	— 5	—18	—1	—30	— 19

5. Observation of star 66 delayed by the accidental placing of screen I in front of the objective. 14. Weight reduced from the theoretical value on account of suspiciously large differences between the stars with respect to their transits on individual threads as compared with Sept. 23.7, and because of several notes on other stars showing that the star images were liable to abnormal disturbance on this date. 22. All three stars observed as if south of the zenith.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.86	7.86	6.82	8
5th	7.74	7.80	6.72	8

Normal Equations.

$+116.71\,x + 28.17\,y - 25.20\,z + 34.93 = 0$

$+ 28.17\,x + 54.37\,y - 0.07\,z + 17.38 = 0$

$- 25.20\,x - 0.07\,y + 102.92\,z - 18.37 = 0$

STARS 67, 68, 69.

				— 16s						
		s	s							
1	'94, Jan. 18.4	— 0.06	— 0.06	— 758	0	0	— 3	0	— 9	+ 89
2	Feb. 15.3	0.08	0.08	732	0	0	4		7	82
3	20	8.54	8.54	741	— 2	— 2	6		7	81
4	21	0.08	0.08	794	0	0	5		7	81
5	22	19.91	19.91	800	4	4	5		7	80
6	23	0.08	0.08	810	0	0	5		7	80
7	Mar. 1	9.08	9.08	722	2	2	4		6	78
8	2	0.08	0.08	782	0	0	4		6	78
9	3	5.60	5.60	672	1	1	2		6	78
10	6.2	— 5.60	— 4.03	— 787	— 1	— 1	— 3	0	— 6	+ 77

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{8}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	-16^s			^{s}							
39	− 254	+1.09	−0.82	−0.76	−130	1.6	−104	25	25	3.5	3
40	414	1.11	.88	+0.84	+ 28	1.2	+17	25	25	2	1
41	434	1.14	.96	+1.04	+ 47	1.3	+31	24	25	2	1.5
42	375	1.14	.97	+0.45	− 12	2.0	−12	25	25	4	4.5
43	346	1.15	.97	+ .16	− 41	1.7	−35	25	25	3.5	3
44	373	1.16	.99	+ .43	− 15	2.0	−15	25	25	3.5	4.5
45	− 397	+1.17	−0.99	+0.67	+ 9	1.7	+ 8	19	25	3	4
							−16				

Assumed $D\alpha$ 1895.0 $= -33^s.330$ $\quad d.D\alpha = -0^s.022$ $\quad p_z = 96.72$

$x = -0.223$ $\quad d.D\mu = -0.020$ $\quad [pnn.3] = 0.3976$

$y = -0.204$ $\quad [pvv] = 0.3956$

$z = +0.124$ $\quad \pi = +0''.06 \pm 0''.035$ $\quad r = \pm 0^s.033$

Stars 64 and 65. $d.\Delta\mu = -0^s.012$, $\pi = 0''.00 \pm 0''.038$, $r_1 = \pm 0''.19$; 45 obs.

WEISSE-BESSEL V, 592.

	-16^s			^{s}							
1	− 681	−0.95	−0.60	+0.16	− 7	1.0	− 4	25	25	2	0.5
2	661	.87	.91	− .04	− 37	1.6	−30	25	25	3.5	3
3	677	.86	.94	+ .12	− 23	1.4	−16	18	18	3.5	3
4	725	.86	.95	+ .60	+ 25	1.6	+20	25	25	3.5	3
5	740	.85	.95	+ .75	+ 39	1.3	+26	14	14	4	4.5
6	742	.85	.96	+ .77	+ 42	1.7	+36	25	25	2.5	3.5
7	658	.83	.98	− .07	− 44	1.2	−26	20	20	3.5	2
8	714	.83	.98	+ .49	+ 13	1.7	+10	25	25	4	3
9	604	.83	.99	− .61	− 98	1.0	−49	22	22	2	1
10	− 721	−0.82	−0.99	+0.56	+ 20	1.7	+16	22	21	4	4
							− 2				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT'	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
11	'94 Sept. 23.7	— 0.09	— 0.09	—720	0	0	— 5	0	— 4	+ 25
12	24	5.61	5.61	672	— 1	— 1	5		4	25
13	27	0.09	0.09	643	0	0	5		4	24
14	28	12.90	12.90	671	— 3	— 3	4		4	24
15	30	— 0.09	— 0.09	—630	0	0	— 5	0	— 4	+ 24
16	95 Feb. 9.3	0.00	0.00	—646	0	0	— 3	0	+ 1	— 10
17	14	0.00	0.00	696	0	0	5		2	12
18	15	0.00	0.00	708	0	0	5		2	12
19	19	—13.72	—13.72	725	— 3	— 3	5		2	13
20	21	+ 0.08	+ 0.08	664	0	0	5		2	13
21	22	— 8.92	— 8.92	717	2	2	5		2	14
22	23	+ 0.08	+ 0.08	660	0	0	5		2	14
23	25	+ 0.08	+ 0.08	681	0	0	4		2	15
24	Mar. 5	— 5.54	— 5.54	—644	— 1	— 1	— 5	0	+ 3	— 17
25	95 Sept. 25.7	+ 0.15	+ 0.15	—438	0	0	+ 4	0	+ 5	— 70
26	29	— 5.64	— 5.64	578	— 1	— 1	4		5	70
27	Oct. 1	0.12	0.12	495	0	0	5		5	71
28	2	.12	.12	572	0	0	5		5	71
29	8	.12	.12	536	0	0	5		5	72
30	9	.12	.12	633	0	0	5		5	72
31	11	0.12	0.12	630	0	0	5		5	73
32	13	12.93	5.64	565	— 3	— 1	6		5	74
33	16	— 0.12	— 0.12	—617	0	0	+ 6	0	+ 5	— 74
34	96 Feb. 8.3	— 0.12	— 0.12	—737	0	0	+ 6	0	+10	—104
35	20	.12	.12	602			4		10	107
36	21	.12	.72	577			4		10	107
37	23	.12	.12	645			3		11	108
38	27	— 0.12	— 0.12	—599	0	0	+ 4	0	+11	—109

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
11	—704	—0.27	+0.99	+0.39	+ 63	1.2	+38	25	25	2	1.5
12	658	.27	.98	— .07	+ 18	1.8	+15	22	22	4.5	4.5
13	628	.26	.97	— .37	— 13	2.0	—13	25	25	4.5	4.5
14	661	.26	.97	— .04	+ 20	1.7	+17	18	18	4.5	4.5
15	—615	—0.25	+0.96	—0.50	— 27	1.8	—24	25	25	4	4
							+ 6				
16	—658	+0.11	—0.86	—0.07	— 43	1.8	—40	25	25	4	4
17	711	.13	.90	+ .46	+ 8	1.8	+ 7	25	25	4	4
18	723	.13	.91	+ .58	+ 20	2.0	+18	25	25	4	5
19	747	.14	.93	+ .82	+ 42	1.3	+28	17	17	4.5	4
20	680	.14	.95	+ .15	— 25	1.5	—20	25	25	2.5	2.5
21	738	.15	.95	+ .73	+ 32	1.6	+26	20	20	4	4
22	677	.15	.96	+ .12	— 28	2.0	—29	25	25	4.5	4.5
23	698	.16	.97	+ .33	— 8	2.0	— 8	25	25	5	5
24	—665	+0.18	—0.99	0.00	— 41	1.2	—25	22	22	3	2
							— 5				
25	—499	+0.74	+0.98	—1.66	—147	0.5	—37	22	22	3	0.5
26	641	.75	.97	—0.24	— 4	1.6	— 4	22	22	4.5	4
27	556	.75	.96	—1.09	— 91	1.2	—55	25	25	3	1
28	633	.76	.96	—0.32	— 13	2.0	—14	25	25	5	5
29	598	.77	.92	— .67	— 50	1.6	—40	25	25	4	3
30	695	.77	.91	+ .30	+ 48	1.7	+40	25	25	4	3.5
31	693	.78	.90	+ .28	+ 44	1.4	+31	25	25	3	2.5
32	632	.79	.88	— .33	— 16	1.9	—15	18	22	5	5
33	—680	+0.79	+0.86	+0.15	+ 30	1.9	+28	25	25	5	4
							— 7				
34	—825	+1.11	—0.85	+1.60	+119	1.6	+94	25	25	4	3
35	695	1.14	.94	+0.30	— 14	1.3	—10	25	25	2.5	1
36	670	1.14	.95	+ .05	— 39	1.6	—33	25	24	4	4
37	739	1.15	.96	+ .74	+ 28	1.7	+24	25	25	4	3.5
38	—693	+1.16	—0.97	+0.28	— 18	1.5	—14	25	25	2.5	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
39	'96, Mar. 1.3	— 0.12	— 0.12	—638	0	0	+ 5	0	+11	—110
40	8	— 0.12	— 0.12	—572	0	0	+ 4	0	+11	—111
	Rejected Observation.									
41	96 Feb. 11.3	—25.08	—25.08	—285	—5	—5	+ 5	0	+10	—105

5. Star 68, est'd mag., 8.5. 16. Star 68, est'd mag., 8.2, or brighter. 19. Star 68, ff. 25. Images breaking and diffuse. Star 68, est'd mag., 8.0. 41. Star 68, almost invisible, illumination too low to see threads distinctly. The differences between the stars of this set on the individual threads were compared with the corresponding differences on Feb. 8.3, and star 68 was found to have been observed systematically late with reference to the mean of stars 67 and 69 as compared with the observation of Feb. 8.3, the mean relative retardation of star 68 being 0s.24. A poor night for observations; temperature had fallen 13° F. since the observing was begun.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	6.00	8.10	6.81	8
5th	5.78	8.07	6.78	6

Normal Equations.

$+104.18\,x + 21.96\,y - 27.32\,z + 18.79 = 0$

$+ 21.96\,x + 55.83\,y + 4.44\,z + 3.09 = 0$

$- 27.32\,x + 4.44\,y + 92.48\,z - 32.06 = 0$

STARS 70, 71, 72.

		s	s	—5s					
1	'95, Feb. 9.4	0.00	0.00	—416	0	0	—24	0	+37
2	14.3	.00	.00	395	0	0	32		24
3	19	+ .08	+ .08	421	— 6	+ 3	43		32
4	21	.08	.08	388	6	3	43		30
5	23	+ 0.08	+ .08	460	— 6	+ 3	38		29
6	Mar. 8	— 3.06	— 0.02	—550	+225	— 1	—37	0	+20
7	95 Sept. 25.7	— 0.12	— 0.12	—459	+ 9	— 4	+44	0	+57
8	30	.12	0.12	559	9	4	37		62
9	Oct. 1	.12	1.89	440	9	70	38		63
10	2	.12	0.12	567	9	3	39		64
11	8	.12	0.12	530	9	4	39		69
12	11	—0.12	— 0.12	—496	+ 8	— 4	+44	0	+72

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
39	−732	+1.17	−0.98	+0.67	+ 20	1.8	+18	25	25	4	4
40	−668	+1.19	−1.00	+0.03	− 43	2.0	−43	25	25	5	4.5
							+ 5				
				Rejected Observation.							
41	−385	+1.12	−0.87	−2.80	−323			9	9	2.5	2

Assumed $D\alpha$ 1895.0 = $-16^s.665$ $d.D\alpha = -0^s.008$ $p_z = 83.29$

$x = -0.085$ $d.D\mu = -0.005$ $[pnn.3] = 0.1509$

$y = -0.048$ $[pvv] = .1520$

$z = +0.324$ $\pi = +0''.24 \pm 0''.036$ $r = \pm 0^s.022$

	Obs. 1-24.	Obs. 25-40.
y =	$-0^s.0525$, adopted from the general solution.	
$d.D\alpha$	$-0^s.010$	$-0^s.010$
π	$+0''.22 \pm 0''.042$	$+0''.28 \pm 0''.072$
r	$\pm 0^s.018$	$\pm 0^s.029$

Stars 67 and 68. $d.\Delta\mu = 0^s.000$, $\pi = +0''.22 \pm 0''.045$, $r_1 = \pm 0''.20$; 40 obs.

β AURIGAE.

	-5^s			^{s}							
1	−403	+0.11	−0.80	+0.13	− 15	2.0	−15	25	25	5	5
2	393	.13	.85	+ .03	− 24	2.0	−24	25	25	5	5
3	435	.14	.89	+ .45	+ 18	2.0	+18	25	25	4.5	4.5
4	404	.14	.91	+ .14	− 13	1.8	−12	25	25	4	3.5
5	472	.15	.92	+ .82	+ 55	2.0	+55	25	25	5	5
6	−343	+0.19	−0.98	−0.47	− 71	1.2	−43	22	25	3.5	—
							− 4				
7	−353	+0.74	+1.00	−0.37	− 43	1.6	−34	19	25	3	3
8	455	.75	0.98	+ .65	+ 59	1.7	+50	19	25	4.5	3
9	400	.75	.98	+ .10	+ 4	1.8	+ 4	25	24	4.5	3.5
10	458	.75	.98	+ .68	+ 62	2.0	+62	25	25	5	5
11	417	.77	.06	+ .27	+ 23	1.0	+12	24	25	2.5	0
12	−376	+0.78	+0.94	−0.14	− 17	1.7	−14	25	25	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
13	'95, Oct. 13.7	—0.12	—0.12	—459	+ 9	— 3	+48	0	+ 73	
14	16	0.12	0.12	478	9	4	49		76	
15	21	—0.12	—0.12	—543	+ 9	— 3	+49	0	+ 81	
16	96 Feb. 11.3	+0.05	+0.05	—461	— 4	+ 2	+48	0	+107	
17	20	+5.10	—0.12	118	—374	— 4	29		102	
18	21	—0.12	1.30	451	+ 9	48	26		102	
19	23	.12	0.12	516	9	4	27		100	
20	27	.12	.12	518	9	3	39		98	
21	Mar. 1	.12	.12	527	9	4	44		95	
22	8	0.12	.12	546	9	4	45		91	
23	11	3.03	.12	611	222	3	45		89	
24	13	—0.12	—0.12	—495	+ 8	— 4	+32	0	+ 87	

1. Star 70, est'd mag., 8.0; clouds. 6. Quality of images variable; estimated on the three stars as 1, 3, and 4, respectively. Star 70, one thread rejected. 17. Star 70, invisible on F group of threads. Star 72, est'd mag., 6.2.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
2d	7.97	7.28	6.62	6	$+74.11\,x + 54.44\,y - 17.54\,z + 2.27 = 0$
3d	7.83	7.26	6.63	7	$+54.44\,x + 52.18\,y - 11.80\,z - 3.55 = 0$
					$-17.54\,x - 11.80\,y + 63.96\,z + 0.57 = 0$

STARS 73, 74, 75.

				+49s							†
		s	s								
1	'93, Oct. 20.7	— 0.12	+ 0.65	+376	0	— 3	+ 3	0	+10	—89	+104
2	22	+ .11	— 3.38	399	+ 1	+ 15	3		10	89	104
3	24	— .12	0.12	552	0	1	3		10	88	104
4	Nov. 2	.00	0.00	494	0	0	3		10	86	104
5	3	.00	0.00	501	0	0	3		10	86	104
6	7	— .40	4.30	369	— 1	19	3		10	85	104
7	13.6	+ 0.02	—27.40	+331	0	+121	+ 3	0	+ 9	—84	+103

† The first eleven columns correspond to the headings given at the top of the page. The last column contains twice the correction required to reduce the position of star 74 in right ascension to the center of gravity of its system, according to Auwers' coördinates given in *Astronomisehe Nachrichten*, No. 3085, Bd. 129, s: 231.

TABLE VII (Continued).

No.	Da 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
13	—332	+0.79	+0.93	—0.58	— 61	1.8	—55	25	25	4.5	4
14	348	0.79	0.91	—0.42	— 45	1.8	—40	25	25	5	4
15	—407	+0.81	+0.87	+0.17	+ 15	2.0	+15 0	25	25	5	5
16	—308	+1.12	—0.82	—0.82	— 67	1.2	—40	24	24	2.5	1.5
17	365	1.14	.90	— .25	— 9	1.2	— 5	21	25	2	1.5
18	362	1.14	.91	— .28	— 12	1.9	—11	25	24	4.5	4.5
19	384	1.15	.92	— .06	+ 10	2.0	+10	25	25	4.5	5
20	375	1.16	.95	— .15	+ 1	2.0	+ 1	25	25	4.5	5
21	383	1.17	.96	— .07	+ 10	2.0	+10	25	25	4	4.5
22	405	1.19	.99	+0.15	+ 33	2.0	+33	25	25	5	5
23	258	1.19	0.99	—1.32	—113	0.8	—45	23	25	2	1
24	—372	+1.20	—1.00	—0.18	+ 2	1.8	+ 2 — 5	25	25	3	4

Assumed $D\alpha$ 1895.0 $= -5^s.390$ $\quad d.D\alpha = -0^s.035$ $\quad p_z = 59.71$

$x = -0.353$ $\quad d.D\mu = +0.043$ $\quad [pnn.3] = 0.0971$

$y = +0.430$ $\quad [pvv] = 0.0944$

$z = -0.026$ $\quad \pi = -0''.01 \pm 0''.031$ $\quad r = \pm 0^s.023$

Stars 70 and 71. $d.\Delta u = +0^s.036$, $\pi = -0''.10 \pm 0''.045$, $r_1 = \pm 0''.18$; 24 obs.

α CANIS MAJORIS.

	+49^s			^{s}						
1	+401	—1.20	+0.95	+0.25	+135	0.5	+34	11	8	1
2	443	1.19	.93	—0.17	+ 91	0.7	+32	9	5	2
3	582	1.18	.92	—1.56	— 49	1.2	—29	11	11	4
4	525	1.16	.85	—0.99	+ 5	1.2	+ 3	11	11	4
5	532	1.16	.84	—1.06	— 4	1.1	— 2	11	11	3.5
6	419	1.15	.80	+0.07	+108	0.5	+27	10	8	2.5
7	+483	—1.13	+0.73	—0.57	+ 40	0.9	+18	10	10	2

21 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.	
		*	*	*	*	*	*	*	*	*	*
		s	s								
8	'93, Nov. 14.6	0.00	0.00	+ 453	0	0	0	0	+ 9	— 84	+103
9	16	0.00	0.00	+ 463	0	0	0	0	+ 9	— 83	+103
10	94 Feb. 15.4	— 0.08	— 0.08	+ 420	0	0	+ 2	0	+ 2	— 65	+ 99
11	22	+ 5.44	1.76	418	+ 19	+ 8	2		2	63	99
12	23	— 3.68	7.30	443	— 13	32	2		2	63	99
13	25.3	1.55	1.55	361	5	7	2		2	62	99
14	Mar. 1	5.60	5.60	491	20	25	2		2	62	98
15	2	0.24	2.02	347	1	9	2		2	62	98
16	6	27.44	5.60	545	96	25	1		1	61	98
17	11	0.04	0.04	373	0	0	1		+ 1	60	98
18	12	— 9.04	9.04	328	— 32	40	1		— 1	60	97
19	13	+ 0.97	4.66	347	+ 3	+ 21	+ 1		0	60	97
20	15	— 0.04	— 0.04	+ 403	0	0	0	0	0	— 59	+ 97
21	94 Nov. 16.6	— 5.61	— 5.61	+ 371	— 20	+ 25	+ 2	0	+ 5	— 9	+ 76
22	95 Feb. 21.4	+ 0.08	— 5.44	+ 319	0	+ 24	+ 2	0	— 3	+ 10	+ 66
23	23	+ .08	+ 0.08	373	0	0	2		3	11	66
24	Mar. 5.3	— 0.02	— 0.02	315	0	0	2		4	13	65
25	8	9.02	9.02	211	— 32	40	2		5	14	64
26	14	10.87	0.02	336	38	0	2		5	15	63
27	16	1.79	1.79	245	— 6	+ 8	2		5	16	63
28	21	0.02	0.02	340	0	0	2		5	16	63
29	23	— 0.02	— 0.02	+ 252	0	0	+ 2	0	— 5	+ 17	+ 63
30	95 Oct. 8.7	— 0.12	— 0.12	+ 332	0	+ 1	— 2	0	+ 1	+ 57	+ 37
31	9	0.12	10.97	294	— 1	49	2	0	1	57	37
32	11	5.64	0.12	406	20	1	3	0	1	58	37
33	13	0.12	0.12	359	0	0	3	+ 2	1	59	37
34	16	0.12	0.12	304	1	1	3	2	1	59	36
35	17	—12.93	—12.93	+ 225	— 45	+ 58	— 3	+ 2	+ 1	+ 60	+ 36

TABLE VII (Continued).

No.	*Da* 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
8	+ 481	—1.13	+0.72	—0.55	+ 41	0.8	+16	11	11	1.5	
9	+ 492	—1.12	+0.69	—0.66	+ 28	0.7	+10 +12	11	11	0.5	
10	+ 458	—0.87	—0.74	—0.32	— 9	1.7	— 8	25	25	3.5	3.5
11	485	.85	.82	— .59	— 39	1.5	—29	22	18	4.5	3
12	502	.85	.83	— .76	— 57	1.6	—46	23	21	4	3.5
13	404	.84	.85	+0.22	+ 40	2.0	+40	25	25	4.5	4.5
14	536	.83	.88	—1.10	— 94	1.5	—70	22	22	3	3
15	395	.83	.89	+0.31	+ 47	1.6	+38	24	23	4	3
16	513	.82	.92	— .87	— 73	1.6	—58	10	22	5	5
17	413	.81	.99	+ .13	+ 23	2.0	+23	25	25	5	5
18	373	.80	.99	+ .53	+ 62	1.2	+37	20	20	2.5	2
19	409	.80	0.99	+ .17	+ 27	1.7	+23	24	21	4	4
20	+ 441	—0.79	—1.00	—0.15	— 7	1.6	— 6 — 5	25	25	2.5	3
21	+ 450	—0.12	+0.69	—0.24	+ 9	1.6	+ 7	22	22	3.5	3.5
22	+ 418	+0.14	—0.81	+0.08	— 34	1.6	—27	25	22	3	3
23	449	.15	.83	—0.23	— 66	1.6	—53	25	25	3	3
24	391	.18	.91	+0.35	— 13	2.0	—13	25	25	4.5	4.5
25	294	.19	.93	+1.32	+ 82	1.8	+74	20	20	4.5	4.5
26	373	.20	.97	+0.53	+ 2	1.6	+ 2	19	25	3	3.5
27	323	.21	.97	+1.03	+ 51	1.9	+48	24	24	4.5	4.5
28	416	.22	.99	+0.10	— 41	2.0	—41	25	25	4.5	4.5
29	+ 329	+0.23	—0.99	+0.97	+ 43	1.6	+34 + 3	25	25	4	3
30	+ 426	+0.77	+1.00	0.00	— 8	2.0	— 8	25	25	5	4.5
31	435	.77	0.99	— .09	— 18	1.4	—13	25	19	2	2.5
32	480	.78	.99	— .54	— 63	1.7	—54	22	25	4.5	4
33	455	.79	.98	— .29	— 39	1.6	—31	25	25	4.5	3
34	399	.79	.97	+ .27	+ 16	1.4	+11	25	25	4	2
35	+ 334	+0.80	+0.97	+0.92	+ 80	0.5	+20	18	18	2	0.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.	
		*	*	*	*	*	*	*	*	*	*
		s	s								
36	'95, Oct. 21.7	−9.12	−9.12	+266	− 32	+ 41	− 3	+2	+ 1	+60	+ 35
37	29	0.12	0.12	341	0	1	3	2	1	62	34
38	31	0.12	0.12	279	− 1	0	3	1	1	62	34
39	Nov. 4	−0.12	−0.12	+268	0	+ 1	− 3	+2	+ 1	+63	+ 34

1. Images very diffuse and unsteady. Star 74, est'd mag., 6.5. 3. Star 74, est'd mag., 6.5 to 7.
4. Star 74, est'd mag., 6 to 6.5. 6. Clouds; stars 73 and 75, fff; star 74, est'd mag., 8.0.

Normal Equations.

$$+91.39\,x - 6.86\,y - 17.59\,z + 4.06 = 0$$
$$-6.86\,x + 48.36\,y + 30.88\,z + 17.14 = 0$$
$$-17.59\,x + 30.88\,y + 75.85\,z - 11.41 = 0$$

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	7.56	6.64	7.54	5

STARS 76, 77, 78.

				−58s					
		s	s						
1	'95, Mar. 8.3	−25.26	−25.26	− 382	+ 5	+ 30	−33	− 1	+ 2
2	16	23.33	23.33	518	5	28	32	1	2
3	21	23.33	23.33	385	5	28	32	1	3
4	23	−21.53	−21.53	− 458	+ 4	+ 26	−29	− 1	+ 4
5	95 Oct. 11.7	−23.43	−23.43	− 451	+ 5	+ 28	+40	0	+28
6	13	12.80	18.36	457	3	22	42	− 2	28
7	16	12.80	18.36	476	3	22	44	2	29
8	17	27.48	25.36	545	6	30	43	2	29
9	31	25.36	25.36	556	5	30	40	2	32
10	Nov. 4	−21.63	−21.63	− 535	+ 4	+ 26	+59	− 2	+33
11	96 Mar. 8.3	− 9.08	−14.64	− 532	+ 2	+ 18	+40	− 2	+65
12	11	−10.86	16.44	606	+ 2	20	40	1	65
13	13	+ 3.81	− 9.12	− 515	− 1	+ 11	+29	− 2	+66

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
36	+ 370	+0.81	+0.95	+0.56	+ 44	1.5	+33	20	20	5	3.5
37	438	.83	.89	− .12	− 28	2.0	−28	25	25	5	5
38	373	.83	.88	+ .53	+ 31	1.7	+31	25	25	3.5	3.5
39	+ 366	+0.85	+0.84	+0.60	+ 41	2.0	+41	25	25	4	4.5
							0				

7. Difficult to get screen frame exactly in the proper position, on account of the great zenith distance. The observations on some other dates also may possibly have been affected by interference of the screen frame. 35. Telescope shaking in the wind.

Assumed $D\alpha$ 1895.0 $= +49^s.426$ $\quad d.D\alpha = -0^s.001$ $\quad p_z = 54.20$

$x = -0.014$ $\quad d.D\mu = -0.061$ $\quad [pnn.3] = 0.1806$

$y = -0.608$ $\quad [pvv\ ] = 0.1792$

$z = +0.395$ $\quad \pi = +0''.28 \pm 0''.047$ $\quad r = \pm 0^s.024$

97 MONOCEROTIS.

	-58^s			^{s}							
1	− 379	+0.19	−0.93	−0.41	− 51	1.4	−36	11	11	4.5	4.5
2	516	.21	.97	+ .96	+ 85	1.5	+64	12	12	5	5
3	382	.22	.99	− .38	− 49	1.5	−37	12	12	5	5
4	− 454	+0.23	−0.99	+0.34	+ 22	1.3	+14	13	13	4	3
							+ 1				
5	− 350	+0.78	+0.99	−0.70	− 46	0.9	−21	12	12	2.5	1
6	364	.79	.98	− .56	− 32	1.3	−21	12	15	4.5	3.5
7	380	.79	.97	− .40	− 16	1.3	−10	12	15	5	4
8	439	.80	.97	+ .19	+ 42	1.1	+23	10	11	3.5	2.5
9	451	.83	.88	+ .31	+ 52	1.0	+26	11	11	2	2
10	− 415	+0.85	+0.85	−0.05	+ 15	1.5	+11	13	13	5	4.5
							+ 1				
11	− 409	+1.19	−0.93	−0.11	− 37	1.6	−30	14	17	4.5	4.5
12	480	1.19	.95	+ .60	+ 34	1.2	+20	13	16	2.5	2.5
13	− 412	+1.20	−0.96	−0.08	− 33	1.5	−24	13	20	3.5	3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
14	'96, Mar. 17.3	+ 5.55	— 7.34	— 574	— 1	+ 9	+29	—2	+66	
15	19	— 7.40	12.93	542	+ 1	15	30	1	66	
16	21	+ 5.55	7.44	535	— 1	9	32	2	66	
17	23	— 9.08	—14.64	— 604	+ 2	+18	+29	—1	+67	

Epoch. Estimated Magnitudes. No. of Ests.
3d 7.76 6.16 7.44 7

Normal Equations.

$+32.11\,x + 27.30\,y - 14.69\,z + 3.25 = 0$
$+27.30\,x + 28.49\,y - 13.12\,z + 3.73 = 0$
$-14.69\,x - 13.12\,y + 29.53\,z - 6.75 = 0$

STARS 79, 80, 81.

				—37s						
		s	s							
1	'93, Oct. 20.7	— 0.12	— 0.12	— 676	0	— 2	+ 7	0	+ 6	+ 31
2	21	.12	.12	607		1	7		6	31
3	22	.12	.12	592		2	7		6	31
4	24	— .12	.12	667		1	7		5	31
5	Nov. 2	.00	.00	587		0	6		5	30
6	3	.00	0.00	637		0	7		5	30
7	6	.00	— 5.35	454		—70	7		5	30
8	7	.00	0.00	648		0	7		4	30
9	13.6	.00	.00	831		0	+ 6		4	29
10	14	.00	.00	556		0	0		4	29
11	16	0.00	0.00	— 620	0	0	— 1	0	+ 4	+ 29
12	94 Feb. 22.4	— 1.83	— 0.08	— 576	+ 18	— 1	+ 5	0	+ 7	+ 22
13	23	+ 0.54	.87	582	— 1	11	5		7	22
14	25	—21.59	.08	828	+222	1	4		7	22
15	Mar. 1.3	0.08	.08	585	1	1	4		7	22
16	2	0.08	.08	607	1	1	4		7	22
17	6	— 0.08	— 0.08	— 580	+ 1	— 1	+ 3	0	+ 7	+ 21

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
				^{s}						
14	—473	+1.21	—0.98	+0.53	+ 26	1.5	+20	14	21	5 4
15	431	1.22	.98	+ .11	— 19	1.4	—13	15	18	2.5 3
16	431	1.22	.99	+ .11	— 16	1.4	—11	14	21	2.5 2.5
17	—489	+1.23	—0.99	+0.69	+ 42	1.7	+36	14	17	5 5
							0			

Assumed $D\alpha$ 1895.0 $= -58^s.420$ $\quad d.D\alpha = +0^s.014$ $\quad p_z = 22.73$

$x = +0.137$ $\quad d.D\mu = -0.016$ $\quad [pnn.3] = 0.0516$

$y = -0.157$ $\quad [pvv] = 0.0524$

$z = +0.226$ $\quad \pi = +0''.17 \pm 0''.065$ $\quad r = \pm 0^s.021$

PIAZZI, vi, 305.

	-37^s			^{s}						
1	— 634	—1.20	+0.97	+0.74	+ 60	0.8	+24	11	11	1
2	564	1.19	.96	+ .04	— 9	1.0	— 4	11	11	2.5
3	550	1.19	.96	— .10	— 23	1.2	—14	11	11	3.5
4	625	1.18	.95	+ .65	+ 52	1.1	+28	11	11	3
5	546	1.16	.88	— .14	— 27	1.1	—15	11	11	3
6	595	1.16	.87	+ .35	+ 22	1.2	+13	11	11	4
7	482	1.15	.85	— .78	— 91	1.0	—46	11	8	4.5
8	607	1.15	.84	+0.47	+ 34	1.3	+22	11	11	4.5
9	792	1.13	.78	+2.32	+220	0.5	+55	11	11	0.5
10	523	1.13	.77	—0.37	— 49	0.7	—17	11	11	1
11	— 588	—1.12	+0.74	+0.28	+ 17	1.0	+ 8	11	11	2.5
							+ 5			
12	— 525	—0.85	—0.78	—0.35	— 38	1.0	—19	22	25	2 2
13	560	.85	.79	— .00	— 2	1.0	— 1	22	23	0.5 3
14	574	.84	.81	+ .14	+ 12	1.7	+10	13	25	4.5 4.5
15	552	.83	.85	— .08	— 10	1.8	— 9	25	25	4 4
16	574	.83	.86	+ .14	+ 12	1.5	+ 9	25	25	4 2.5
17	— 549	—0.82	—0.89	—0.11	— 13	1.5	—10	25	25	3.5 3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
18	'94, Mar. 11.3	+ 8.74	— 0.05	— 476	— 90	— 1	+ 2	0	+ 8	+ 21
19	12	— 0.04	— 0.04	619	+ 1	0	2		8	21
20	16	1.88	+ 1.65	582	+ 21	+ 21	1		8	21
21	15	— 0.04	— 0.04	— 623	0	— 1	+ 1	0	+ 8	+ 21
22	94 Nov. 16.6	— 4.71	— 1.18	— 645	+ 49	— 15	+ 3	0	— 5	+ 3
23	95 Mar. 5.3	— 0.02	— 0.02	— 515	0	0	+ 5	0	— 1	— 5
24	14	.02	.02	505	0	0	4		— 1	5
25	21	.02	.02	532	0	0	4		0	6
26	23	.02	.02	581	0	0	4		0	6
27	26	.02	.02	568	0	— 1	4		0	6
28	27	— 0.70	— 0.02	— 617	+ 7	0	+ 1	. 0	0	— 6
29	95 Oct. 8.7	— 0.12	— 0.12	— 495	+ 1	— 2	— 5	0	—11	— 20
30	9	.12	.12	496	1	1	5		11	20
31	11	.72	.12	511	7	2	5		11	20
32	12	.12	0.12	517	1	1	6		11	20
33	13	.12	1.01	527	1	13	6		11	21
34	16	.12	0.12	432	1	2	6		12	21
35	17	.12	.12	508	2	1	5		12	21
36	21	.12	.12	495	1	2	6		12	21
37	22	.12	.12	505	1	1	6		12	21
38	29	.12	.12	658	1	2	6		13	22
39	31	.12	.12	557	1	1	6		13	22
40	Nov. 4	— 0.12	— 0.12	— 500	+ 2	— 2	— 5	0	—13	— 22
41	96 Mar. 17.3	— 0.12	— 0.12	— 548	+ 1	— 2	— 4	—1	— 9	— 32
42	19	.12	.12	476	1	2	4	1	9	32
43	21	.12	.12	458	1	2	5	1	9	32
44	23	— 0.12	— 0.12	— 466	+ 1	— 2	— 5	—1	— 9	— 32

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin($L-M$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
18	—536	—0.81	—0.93	—0.24	— 26	1.9	—25	18	25	5	5
19	587	.80	.93	+ .27	+ 25	1.7	+21	25	25	3.5	3
20	511	.80	.94	— .49	— 51	0.8	—20	22	21	1	3
21	—594	—0.80	—0.95	+0.34	+ 32	1.6	+26 — 2	25	25	3.5	3
22	—610	—0.12	+0.74	+0.50	+ 53	1.1	+29	21	24	1.5	...
23	—516	+0.18	—0.88	—0.44	— 31	2.0	—31	25	25	4.5	4.5
24	507	.20	.95	— .53	— 40	1.7	—34	25	25	3	3
25	534	.22	.98	— .26	— 13	2.0	—13	25	25	4.5	4.5
26	583	.23	.98	+ .23	+ 36	1.7	+30	25	25	3.5	3.5
27	571	.24	.99	+ .11	+ 24	1.9	+23	25	25	5	4
28	—615	+0.24	—0.99	+0.55	+ 69	1.6	+55 + 5	24	25	4	3
29	—532	+0.77	+1.00	—0.28	— 13	1.3	— 8	25	25	3	2
30	532	.77	1.00	— .28	— 13	1.7	—11	25	25	3	3
31	542	.78	1.00	— .18	— 3	1.7	— 3	24	25	4	3
32	554	.78	1.00	— .06	+ 9	1.0	+ 4	25	25	2.5	0
33	577	.79	0.99	+ .17	+ 33	1.6	+26	25	21	3.5	3
34	472	.79	.98	— .88	— 72	1.6	—58	25	25	4.5	3
35	545	.80	.98	— .15	+ 1	1.7	+ 1	25	25	4	3.5
36	535	.81	.97	— .25	— 9	2.0	— 9	25	25	5	4.5
37	544	.81	.96	—0.16	0	1.2	0	25	25	2	1
38	700	.83	.92	+1.40	+156	1.0	+78	25	25	4	3.5
39	598	.83	.91	+0.38	+ 54	1.0	+27	25	25	3	1
40	—540	+0.85	+0.88	—0.20	— 4	2.0	— 4 + 3	25	25	5	4.5
41	—595	+1.21	—0.97	+0.35	+ 69	1.8	+57	25	25	4.5	4
42	523	1.22	.97	— .37	— 9	1.3	— 6	25	25	2	2
43	506	1.22	.98	— .54	— 26	1.6	—21	25	25	3	3
44	—514	+1.23	—0.99	—0.46	— 18	2.0	—18	25	25	5	5

22 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
45	'96, Mar. 24.3	— 0.12	— 0.12	— 436	+ 1	— 2	— 6	—1	— 9	— 32
46	26	— 0.12	— 0.12	— 534	+ 1	— 2	— 6	—1	— 9	— 32

10. Images breaking badly. 12, 13, 17, 20, 22. Images breaking. 27. Daylight illumination; threads obscure on star 81. 28. Daylight illumination. 34. Star 81 observed through clouds. 38. Image of star 79 breaking. Comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 37, shows that the large residual of observation 38 arises from a systematic change in the difference between the observed times of stars 79 and 80. 39. Images breaking.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
5th	7.62	6.03	6.59	9	$+100.07\,x + 16.19\,y - 17.96\,z - 9.67 = 0$
6th	7.72	6.12	6.60	6	$+ 16.19\,x + 75.26\,y + 0.98\,z - 12.10 = 0$
					$- 17.96\,x + 0.98\,y + 88.10\,z + 3.86 = 0$

STARS 82, 83, 84.

		s	s	+15s						
1	'93, Nov. 2.7	0.00	0.00	+451	0	0	0	0	+ 2	—46
2	5	.00	.00	475	0	0	+ 1		2	45
3	7	.00	.00	363	0	0	0		2	45
4	13	.00	.00	586	0	0	+ 1		2	44
5	14.6	.00	.00	452	0	0	0		2	44
6	16	0.00	0.00	530	0	0	0		2	44
7	Dec. 3	—11.38	— 8.16	+455	— 20	+12	0	0	+ 1	—42
8	94 Feb. 25.4	— 0.08	— 0.08	+518	0	0	0	0	— 2	—33
9	Mar. 2	+ 1.87	+ 1.87	595	+ 3	— 3	— 1		2	33
10	11.3	— 0.04	— 0.04	565	0	0	0		2	32
11	15	1.81	1.81	505	— 3	+ 3	0		2	31
12	Apr. 1	0.04	0.04	539	0	0	0		2	30
13	5	— 0.04	— 0.04	+598	0	0	0	0	— 2	—29
14	94 Nov. 26.6	— 5.61	— 0.09	+541	— 10	0	0	0	0	— 4

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	r	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
45	— 485	+1.23	—0.99	—0.75	— 47	1.8	—42	25	25	3.5	4
46	— 583	+1.24	—0.99	+0.23	+ 51	1.6	+41	25	25	3	3
							+ 2				

Assumed $D\alpha$ 1895.0 = —37.560 — $d.D\alpha$ = +0.007 — p_z = 84.67
x = + 0.067 — $d.D\mu$ = +0.015 — [$pnn.3$] = 0.1487
y = + 0.147 — [pvv] = 0.1476
z = — 0.032 — $\pi = -0''.02 \pm 0''.028$ — r = ±0s.020

Stars 79 and 80. $d.\Delta\mu$ = +0s.008, π = 0".00 ±0".038, r_1 = ±0".18; 46 obs.

Omitting observations 9, 10, 12, 13, 17, 20, 22, 32, 38, and 39, those for which the star images were extremely poor: —

Stars 79 and 80. $d.\Delta\mu$ = +0s.010, $\pi = +0''.04 \pm 0''.035$, r_1 = ±0".15; 36 obs.

Omitting the same ten observations and observation 7 in addition: —

Stars 80 and 81. $d.\Delta\mu$ = +0s.009, $\pi = -0''.04 \pm 0''.032$, r_1 = ±0".14; 35 obs.

α GEMINORUM, *seq.*

	+15s										
1	+407	—1.16	+0.93	+0.93	+ 47	1.2	+28	11	11	4	
2	433	1.15	.91	+0.67	+ 21	1.2	+12	11	11	4.5	
3	320	1.15	.90	+1.80	+135	0.8	+54	11	11	4.5	
4	545	1.13	.85	—0.45	— 88	0.5	—22	11	11	2	
5	410	1.13	.84	+ .90	+ 47	0.8	+19	11	11	1	
6	488	1.12	.82	+ .12	— 31	1.1	—17	11	11	3	
7	+406	—1.08	+0.62	+0.94	+ 57	0.5	+14	15	13	0.5	
							+13				
8	+483	—0.84	—0.73	+0.17	+ 17	2.0	+17	25	25	5	5
9	559	.83	.79	— .59	— 56	1.0	—28	23	23	3.5	2
10	531	.81	.87	— .31	— 25	2.0	—25	25	25	5	5
11	472	.80	.91	+ .28	+ 35	1.6	+28	24	24	4	3
12	507	.75	0.99	— .07	+ 2	2.0	+ 2	25	25	5	5
13	+567	—0.74	—1.00	—0.67	— 56	1.6	—45	25	25	3	3
							— 8				
14	+527	—0.09	+0.71	—0.27	— 36	1.8	—32	22	25	3.5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
15	'95, Mar. 14.3	s −0.02	s −0.02	+534	0	0	0	0	− 3	+ 8
16	21	0.02	0.02	517	0	0	+ 1		3	9
17	27	−0.02	−0.02	+534	0	0	0	0	− 3	+10
18	95 Oct. 11.7	−0.12	−0.12	+512	0	0	− 1	+1	+ 1	+30
19	16	.12	.12	444	0		1	0	1	31
20	17	.12	.12	493	0		0	1	1	31
21	23	.12	.12	473	0		1	0	+ 1	31
22	Nov. 4	.12	.12	480	− 1		1	+1	0	33
23	11	−0.12	−0.12	+491	0	0	− 1	0	0	+33
24	96 Mar. 8.3	−0.12	−0.12	+626	0	0	0	0	− 4	+46
25	15	2.44	7.02	478	− 4	+11	− 1	+1	4	47
26	19	2.32	2.32	469	− 4	+ 3	0	0	4	47
27	21	0.12	0.12	496	0	0	− 1	+1	4	48
28	24	−0.12	−0.12	+464	0	0	0	0	− 4	+48

1. Star 83, magnitude noted as about 6; least and greatest estimates in subsequent observations were 7.3 and 7.7. 2. Stars 82 and 83, est'd mags., 7.5 and 7.5. 3. Images breaking somewhat. Stars 82 and 83, est'd mags., 7.3 and 7.5. 4. Images breaking. 7. Images breaking frequently. 8. Star 82 observed without screen; no correction applied on account of absence of screen. 9. Star 83, f; images breaking. 18. Daylight illumination. 25. Sky thick. Est'd mags.: 7.7, 8.2, 7.6.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
5th	6.90	7.50	6.55	4	$+68.66\,x + 12.88\,y - 13.79\,z - 13.90 = 0$
6th	6.92	7.58	6.42	4	$+12.88\,x + 52.80\,y + 2.31\,z - 16.82 = 0$
					$-13.79\,x + 2.31\,y + 57.18\,z + 13.60 = 0$

Four observations were made previous to Nov. 2, 1893, with the comparison stars B. D. +30°, 1525, and +33°, 1554, at intervals of very nearly $1^m\ 0^s$ and $1^m\ 32^s$ preceding and following α Geminorum; but these were abandoned on account of the proximity in right ascension of the latter of these stars to star 85.

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	r	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1 m_2	Images.
				s					
15	+ 539	+0.20	—0.90	—0.39	— 3	1.5	— 2	25 25	2.5 2.5
16	524	0.22	0.95	—0.24	+ 14	2.0	+14	25 25	4.5 3.5
17	+ 541	+0.24	—0.97	—0.41	— 2	1.7	— 2 + 3	25 25	4 3.5
18	+ 543	+0.78	+1.00	—0.43	— 32	1.7	—27	25 25	4 3.5
19	475	.79	1.00	+ .25	+ 36	1.5	+27	25 25	3.5 2.5
20	526	.80	1.00	— .26	— 14	1.7	—12	25 25	4 3.5
21	504	.81	0.98	— .04	+ 8	1.3	+ 5	25 25	3 2
22	512	.85	0.93	— .12	+ 3	2.0	+ 3	25 25	5 5
23	+ 523	+0.86	+0.87	—0.23	— 7	2.0	— 7 — 2	25 25	4.5 4.5
24	+ 668	+1.19	—0.86	—1.68	—103	2.0	—103	25 25	5 5
25	528	1.20	.91	—0.28	+ 39	1.6	+31	15 15	4.5 5
26	511	1.22	.94	— .11	+ 57	1.6	+46	23 23	3.5 3.5
27	540	1.22	.95	— .40	+ 28	1.6	+22	25 25	3.5 3.5
28	+ 508	+1.23	—0.97	—0.08	+ 61	1.7	+52 +10	25 25	4.5 3.5

Assumed $D\alpha$ 1895.0 = +15^s.500 $d.D\alpha$ = +0^s.010 p_z = 53.93

x = + 0.100 $d.D\mu$ = +0.030 [$pnn.3$] = 0.1179

y = + 0.304 [pvv] = .1172

z = — 0.226 π = **—0″.14 ± 0″.041** r = ±0^s.023

Omitting observations 3 and 24:—

$d.D\alpha$ = +0^s.008, $d.D\mu$ = +0^s.017, π = —0″.08 ± 0″.029, r_1 = ±0^s.016; 26 obs.

	Stars 82 and 83.	Stars 83 and 84.
$d.D\mu$	+0^s.010	+0^s.024
π	—0″.16 ±0″.043	—0″.14 ±0″.047
r_1	±0″.16	±0″.17
No. of obs.	28	28

TABLE VII (Continued).

STARS 85, 86, 87.

No.	Date.	c_1'	c_2'	DT'	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s	−69s						
1	'93, Oct. 21.7	− 0.12	− 0.12	− 721	0	0	− 6	0	−12	−113
2	22	.12	.12	649			6		12	113
3	24	− .12	− .12	697			6		12	112
4	Nov. 3	.00	.00	686			6		12	110
5	6	0.00	0.00	− 671	0	0	− 6	0	−12	−109
6	94 Mar. 1.4	− 0.08	− 0.08	− 808	0	0	− 3	0	+ 1	− 79
7	6	.08	.08	808	0	0	3		1	78
8	13.3	.04	.04	844	0	0	− 1		2	76
9	17	.04	.04	790	0	0	+ 2		3	75
10	29	0.04	0.04	788	0	0	1		3	72
11	Apr. 7	−12.85	− 5.56	− 902	+14	− 3	+ 1	0	+ 3	− 69
12	94 Nov. 16.7	− 0.09	− 0.09	− 858	0	0	− 3	0	− 4	− 11
13	95 Mar. 26.3	− 0.02	− 0.02	− 877	0	0	− 4	−1	+ 9	+ 23
14	30	0.02	0.02	947	0	0	0	1	9	24
15	Apr. 4	− 0.02	− 0.02	− 922	0	0	+ 2	−1	+10	+ 25
16	95 Oct. 21.7	− 0.12	− 0.12	− 905	0	0	+ 5	−2	+ 1	+ 77
17	22	.12	.12	876			5	3	1	77
18	29	.12	.12	848			6	3	1	79
19	31	.12	.12	794			6	2	1	79
20	Nov. 10	− 0.12	− 0.12	− 876	0	0	+ 5	−2	+ 2	+ 82
21	96 Mar. 13.3	− 0.12	− 0.12	− 961	0	0	+ 3	−2	+15	+114
22	17	.12	.12	983	0	0	3	2	16	115
23	26	.12	.12	968	0	0	4	2	16	117
24	30	− 0.12	− 0.12	−1016	0	0	+ 6	−2	+16	+118

TABLE VII (Continued).

α CANIS MINORIS.

No.	$D\alpha$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
	-69^s			^{s}						
1	−852	−1.19	+0.99	+0.02	+ 29	1.0	+14	11	11	2.5
2	780	1.19	.99	− .70	− 44	1.0	−22	11	11	2.5
3	827	1.18	.98	− .23	+ 3	1.1	+ 2	11	11	3.5
4	814	1.16	.93	− .36	− 13	1.3	− 8	11	11	5
5	−798	−1.15	+0.91	−0.52	− 28	1.3	−18	11	11	4.5
							− 6			
6	−889	−0.83	−0.75	+0.39	− 1	1.3	0	25	25	3 2
7	888	.82	.81	+ .38	− 6	2.0	− 6	25	25	4.5 4.5
8	919	.80	.87	+ .69	+ 24	1.7	+20	25	25	4.5 3
9	860	.79	.91	+ .10	− 36	1.7	−31	25	25	3.5 3.5
10	856	.76	0.97	+0.06	− 44	2.0	−44	25	25	4 4.5
11	−956	−0.73	−1.00	+1.06	+ 57	1.9	+54	18	22	4.5 4.5
							− 1			
12	−876	−0.12	+0.83	+0.26	+ 69	1.6	+55	25	25	2.5 2.5
13	−850	+0.24	−0.96	0.00	− 28	2.0	−28	25	25	5 5
14	915	0.25	0.98	+0.65	+ 37	1.6	+30	25	25	4 3
15	−886	+0.26	−0.99	+0.36	+ 8	2.0	+ 8	25	25	4.5 4.5
							+ 3			
16	−824	+0.81	+0.99	−0.26	+ 42	1.0	+21	25	25	2.5 0.5
17	796	.81	.99	−0.54	+ 13	1.3	+ 8	25	25	3 1
18	765	.83	.97	−0.85	− 18	1.6	−14	25	25	3.5 2.5
19	710	.83	.96	−1.40	− 74	1.3	−48	25	25	3 1.5
20	−789	+0.86	+0.89	−0.61	+ 4	2.0	+ 4	25	25	5 5
							− 6			
21	−831	+1.20	−0.88	−0.19	− 21	2.0	−21	25	25	4.5 4.5
22	851	1.21	.91	+ .01	− 2	2.0	− 2	25	25	5 5
23	833	1.24	.97	− .17	− 22	2.0	−22	25	25	5 5
24	−878	+1.25	−0.98	+0.28	+ 23	2.0	+23	25	25	5 5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
25	'96, Apr. 4.3	— 3.06	— 3.06	— 994	+ 3	— 2	+ 5	—2	+16	+120
26	6	—29.17	— 0.12	—1050	+32	0	+ 5	—2	+17	+120
	Rejected Observations.									
27	93 Oct. 17.7	— 0.12	— 0.12	— 554	0	0	— 6	0	—13	—114
28	20	— 0.12	— 0.12	— 525	0	0	— 6	0	—12	—114

5. Star 86, est'd mag., 6.0. 11. Daylight illumination. 14. Star 86, est'd mag., 5.7. 15. Daylight illumination; threads obscure on star 86. 26. Daylight illumination. 27, 28. Star 86 observed with screen III; est'd mag., 8.0 for observation 27 and very faint for observation 28. Both observations rejected on account of the uncertainty of the correction required to reduce to an observation with screen II.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	6.22	5.72	6.80	4
6th	6.44	6.02	6.92	5

Normal Equations.

$+71.30\,x + 15.43\,y - 29.22\,z + 2.28 = 0$

$+15.43\,x + 62.07\,y - 13.49\,z - 9.41 = 0$

$-29.22\,x - 13.49\,y + 62.63\,z - 20.97 = 0$

STARS 88, 89, 90.

				— 20s						
		s	s							
1	'93, Oct. 17.7	— 0.12	— 0.12	— 653	+ 1	— 1	— 5	0	— 7	+147
2	20	.12	.12	585	1	1	5		6	146
3	21	.12	.12	628	1	1	4		6	146
4	22	.12	.12	443	1	1	4		6	145
5	24	— .12	— .12	610	+ 1	— 1	4		6	144
6	Nov. 2	.00	.00	576	0	0	4		6	141
7	3	.00	.00	652	0	0	4		5	141
8	5	.00	.00	627	0	0	4		5	140
9	6	.00	.00	616	0	0	4		5	140
10	7	.00	.00	567	0	0	4		5	140
11	13	.00	.00	648	0	0	— 4		4	137
12	14	.00	.00	658	0	0	0		4	137
13	16	0.00	0.00	667	0	0	0		4	136
14	Dec. 3.6	+10.21	+ 5.44	557	—119	+52	+ 2		3	131
15	12	— 5.15	+ 0.51	— 543	+ 60	+ 5	— 3	0	— 3	+128

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
				s						
25	— 851	+1.26	—0.99	+0.04	— 1	1.9	— 1	22	22	5 5
26	— 878	+1.27	—1.00	+0.28	+ 22	1.4	+15	9	25	4 4
							— 1			
				Rejected Observations.						
27	— 687	—1.20	+1.00	—1.63	—136			11	11	...
28	— 657	—1.20	+0.99	—1.93	—166			11	11	1

Assumed $D\alpha$ 1895.0 = $-69^s.850$ $\quad d.D\alpha = +0^s.010$ $\quad p_z = 49.77$

$x = + 0.095$ $\quad d.D\mu = +0.022$ $\quad [pnn.3] = 0.0680$

$y = + 0.221$ $\quad [pvv] = 0.0668$

$z = + 0.427$ $\quad \pi = +0''.32 \pm 0''.039$ $\quad r = \pm 0^s.018$

No corrections were applied for inequality of proper motion. The effect upon the results would be insensible.

LALANDE 15290.

	—20s			s						
1	— 518	—1.20	+1.00	—0.02	+ 50	1.2	+30	11	11	4
2	450	1.20	1.00	—0.70	— 18	0.8	— 7	11	11	1
3	492	1.19	1.00	—0.28	+ 23	1.0	+12	11	11	2.5
4	308	1.19	0.99	—2.12	—161	0.6	—48	11	11	2.5
5	476	1.18	.99	—0.44	+ 7	1.3	+ 5	11	11	4.5
6	445	1.16	.96	— .75	— 25	1.2	—15	11	11	4
7	520	1.16	.95	— .00	+ 50	1.3	+32	11	11	4.5
8	496	1.15	.94	— .24	+ 25	1.4	+18	11	11	5
9	485	1.15	.93	— .35	+ 14	1.2	+ 8	11	11	4
10	436	1.15	.93	— .84	— 35	1.3	—23	11	11	4.5
11	519	1.13	.88	— .01	+ 48	1.0	+24	11	11	2.5
12	525	1.13	.87	+ .05	+ 54	0.8	+22	11	11	1
13	535	1.12	.86	+ .15	+ 62	1.1	+34	11	11	3
14	494	1.08	.67	—0.26	+ 19	0.8	+ 8	16	17	0.5
15	— 356	—1.05	+0.54	—1.64	—122	1.0	—61	21	24	0.5
							+ 3			

23 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
16	'94, Mar. 1.4	— 1.85	— 0.08	— 633	+ 22	— 1	— 2	0	0	+102
17	2	6.05	6.05	574	71	58	2			101
18	6	0.08	0.08	587	1	1	1			100
19	11	0.04	0.04	584	0	0	1			98
20	13	10.12	12.00	647	118	115	1			97
21	15	0.04	0.04	615	0	0	— 1			97
22	17.3	.04	0.04	562	0	0	+ 2			96
23	29	.04	0.04	657	0	0	0			92
24	Apr. 1	— .39	— 1.06	692	+ 5	— 10	0			92
25	5	+ 0.04	+ 0.04	— 600	0	0	0	0	0	+ 90
26	94 Nov. 16.7	— 1.32	— 1.32	— 590	+ 15	— 13	— 2	0	0	+ 15
27	26.6	1.86	0.09	534	22	1	2		+ 1	12
28	Dec. 2	1.73	1.73	510	+ 20	— 17	5		2	10
29	3	0.01	0.01	495	0	0	5		2	10
30	4	— 0.01	— 0.01	— 462	0	0	— 4	0	+ 2	+ 9
31	95 Mar. 21.3	— 0.02	— 0.02	— 478	0	0	— 3	0	+ 5	— 27
32	26	0.02	0.02	527	0	0	3		5	29
33	27	0.02	0.02	471	0	0	— 1		5	29
34	Apr. 4	— 5.54	— 5.54	— 446	+ 65	— 53	+ 1	0	+ 5	— 32
35	95 Oct. 16.8	—26.26	—26.26	— 454	+307	—252	+ 4	—1	+ 3	— 96
36	17	— 0.12	— 0.12	451	+ 1	— 1	4	1	3	97
37	21.7	+ 3.16	+ 3.16	438	— 37	+ 30	3	1	3	98
38	22	— 0.12	— 0.12	398	+ 1	— 1	3	1	3	98
39	23	0.12	0.12	418	1	1	3	1	3	99
40	29	27.48	21.63	602	322	208	3	0	4	101
41	31	0.12	0.12	476	1	1	3	1	4	102
42	Nov. 4	—12.93	—12.93	— 505	+151	—124	+ 3	—1	+ 5	—103

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
16	— 512	—0.83	—0.72	—0.08	+ 17	1.3	+11	24	25	3.5	2
17	462	.83	.73	— .58	— 33	1.5	—25	21	21	4	3
18	488	.82	.78	— .32	— 9	2.0	— 9	25	25	5	5
19	487	.81	.83	— .33	— 10	2.0	—10	25	25	5	4.5
20	548	.80	.85	+ .28	+ 51	0.4	+10	10	12	1	3
21	519	.80	.87	— .01	+ 21	1.6	+17	25	25	4	3
22	464	.79	.88	— .56	— 35	1.6	—28	25	25	3.5	3.5
23	565	.76	.96	+ .45	+ 65	1.6	+52	25	25	3	3.5
24	605	.75	.97	+ .85	+105	1.0	+52	23	24	3	3
25	— 510	—0.74	—0.99	—0.10	+ 9	1.5	+ 7 + 8	24	24	2.5	2.5
26	— 575	—0.12	+0.86	+0.55	+ 64	1.5	+48	23	23	2.5	2.5
27	502	.09	.75	— .18	— 11	1.6	— 9	24	25	3	3
28	500	.08	.68	— .20	— 15	1.2	— 9	22	22	3.5	3
29	488	.08	.67	— .32	— 27	1.7	—23	25	25	3.5	3.5
30	— 455	—0.07	+0.66	—0.65	— 60	1.7	—51 — 9	25	25	3.5	3
31	— 503	+0.22	—0.91	—0.17	— 36	2.0	—36	25	25	5	5
32	554	.24	.95	+ .34	+ 15	2.0	+15	25	25	5	5
33	496	.24	.95	— .24	— 43	1.6	—34	25	25	3.5	3
34	— 460	+0.26	—0.98	—0.60	— 80	1.8	—72 —32	22	22	4.5	5
35	— 489	+0.79	+1.00	—0.31	— 57	0.6	—17	9	10	3.5	2.5
36	542	.80	1.00	+ .22	— 5	1.7	— 8	25	25	4	3.5
37	538	.81	1.00	+ .18	— 10	0.8	— 4	21	21	2	0
38	491	.81	0.99	— .29	— 57	1.2	—34	25	25	2.5	1
39	512	.81	.99	— .08	— 36	1.2	—22	25	25	2.5	1.5
40	582	.83	.97	+ .62	+ 33	1.1	+18	10	13	3	3
41	572	.83	.97	+ .52	+ 23	1.3	+15	25	25	4	2.5
42	— 574	+0.85	+0.95	+0.54	+ 24	1.7	+20	18	18	5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
43	'95, Nov. 10.7	— 0.12	— 0.12	— 447	+ 1	— 1	+ 4	—1	+ 5	—105
44	11	— 0.12	— 0.12	— 454	+ 1	— 1	+ 4	—1	+ 5	—105
45	96 Mar. 17.3	—19.95	—19.95	— 473	+233	—192	+ 2	—1	+10	—148
46	19	0.12	0.12	456	1	1	2	0	10	149
47	21	.12	.12	384	2	1	3	1	10	149
48	23	.12	.12	423	1	1	3	0	10	150
49	24	.12	.12	497	2	1	3	1	10	150
50	26	.12	.12	504	1	1	3	0	10	151
51	30	.12	.12	409	2	1	4	—1	10	152
52	Apr. 4	— 0.12	— 0.12	— 488	+ 1	— 1	+ 4	0	+ 9	—154

2. Daylight illumination; star 89, ff. 4. Clouds gathering. 14, 20. Images breaking frequently. 22. Star 89, f. 24, 28, 41. Images breaking at times. 25. Star 89, f. 35. Daylight illumination; star 89, fff. 36. Daylight illumination; star 89, f; clouds near. 37. Clouds spreading over the sky; star 89 invisible on some threads. Reject?

Epoch.	Estimated Magnitudes.†					No. of Ests.
5th	7.33	8.38	7.12	7.40	7.70	4
6th	7.06	8.22	6.90	7.21	7.61	8

Normal Equations.

$+111.32\,x + 10.71\,y - 12.81\,z + 8.11 = 0$

$+ 10.71\,x + 91.14\,y - 21.09\,z + 37.91 = 0$

$- 12.81\,x - 21.09\,y + 90.88\,z - 15.52 = 0$

† Including also stars 91 and 92.

STARS 90, 91, 92.

				$+77s$						
		s	s							
1	'93, Oct. 16.8	— 0.31	— 0.31	+1234	+ 2	— 5	+24	0	+28	— 26
2	17	.12	.12	1070	1	2	24	+1	28	26
3	20.7	.12	.12	1073	1	2	24	0	27	25
4	21	.12	.12	1104	1	2	24	1	27	25
5	24	— .12	— .12	1086	+ 1	— 2	23	0	26	25
6	Nov. 2	.00	.00	1125	0	0	23	1	24	25
7	3	.00	.00	1083	0	0	23	0	24	25
8	5	.00	.00	1072	0	0	22	+1	23	25
9	6	0.00	0.00	+1103	0	0	+22	0	+23	— 25

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	r	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
43	—544	+0.86	+0.91	+0.24	— 6	2.0	— 6	25	25	4.5	5
44	—551	+0.86	+0.91	+0.31	+ 1	1.7	+ 2	25	25	3.5	3
							— 4				
45	—569	+1.21	—0.89	+0.49	— 9	1.3	— 6	14	14	4.5	4
46	593	1.22	.91	+ .73	+ 15	1.7	+13	25	25	3.5	3.5
47	520	1.22	.92	+ .00	— 58	1.3	—38	25	25	3	3
48	560	1.23	.93	+0.40	— 19	2.0	—19	25	25	5	5
49	634	1.23	.94	+1.14	+ 55	1.7	+47	25	25	4	3
50	642	1.24	.95	+1.22	+ 63	2.0	+63	25	25	5	5
51	547	1.25	.97	+0.27	— 32	2.0	—32	25	25	5	5
52	—629	+1.26	—0.99	+1.09	+ 49	2.0	+49	25	25	5	5
							+10				

Assumed $D\alpha$ 1895.0 $= -20^s.520$ $\quad d.D\alpha = -0^s.003$ $\quad p_z = +85.03$

$x = -0.026$ $\quad d.D\mu = -0.040$ $\quad [pnn.3] = 0.1886$

$y = -0.395$ $\quad [pvv] = 0.1884$

$z = +0.075$ $\quad \pi = +0''.05 \pm 0''.030$ $\quad r = \pm 0^s.021$

	Obs. 1-34.	Obs. 35-52.
y = —0s.3955, assumed from the general solution.		
$d.D\alpha$	+0s.001	—0s.008
π	0".00 ±0".040	+0".10 ±0".042
r	±0s.021	±0s.020

LALANDE 15565.

	+78s			s						
1	+200	—1.21	+1.00	—1.10	— 85	0.8	—34	10	10	...
2	96	1.20	1.00	—0.06	+ 19	1.2	+12	11	11	4
3	98	1.20	1.00	— .08	+ 17	0.9	+ 8	11	11	1
4	130	1.19	1.00	— .40	— 16	1.1	— 9	11	11	2.5
5	109	1.18	0.99	— .19	+ 5	1.3	+ 3	11	11	4.5
6	148	1.16	.97	— .58	— 34	1.2	—22	11	11	4
7	105	1.16	.96	— .15	+ 9	1.3	+ 6	11	11	4.5
8	93	1.15	.95	— .03	+ 21	1.4	+20	11	11	5
9	+123	—1.15	+0.95	—0.33	— 9	1.2	— 5	11	11	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
10	'93, Nov. 7.7	0.00	0.00	+1072	0	0	+22	+1	+22	− 24
11	13	.00	0.00	988	0	0	+22	0	21	24
12	14	.00	0.00	1145	0	0	− 2	1	21	24
13	Dec. 3.6	+ 0.52	+ 3.61	1059	− 4	+ 57	−12	0	15	22
14	12	− 0.04	− 0.04	+1166	0	− 1	+19	+1	+12	− 22
15	94 Mar. 1.4	− 0.08	− 0.08	+1113	+ 1	− 1	+13	0	− 5	− 18
16	2	.08	+ 5.44	962	1	+ 86	12	+1	5	18
17	6	.08	− 0.08	1165	1	− 1	9	0	5	18
18	11	0.04	0.04	1142	0	1	6	1	5	17
19	13	10.54	13.84	1254	+ 72	220	4	0	5	17
20	15.3	0.04	0.04	1086	0	1	+ 3	1	5	17
21	17	.04	1.81	1185	0	29	− 8	0	5	17
22	29	.04	0.04	1075	0	1	3	1	4	16
23	Apr. 1	.04	.04	1118	0	1	4	0	4	16
24	5	.04	.04	1078	0	1	1	+1	4	15
25	7	− 0.04	− 0.04	+1153	0	− 1	− 2	0	− 4	− 15
26	94 Nov. 16.7	− 0.09	+ 0.17	+1053	+ 1	+ 3	+11	0	− 1	− 3
27	26.6	.09	− 1.35	1106	1	− 21	10	+1	5	2
28	Dec. 2	.09	0.09	1090	+ 1	− 1	26	1	7	2
29	3	.01	0.01	1060	0	0	22	1	7	2
30	4	− 0.01	− 0.01	+1101	0	0	+21	+1	− 8	− 2
31	95 Mar. 21.3	− 0.02	− 0.02	+1072	0	0	+14	+1	−26	+ 4
32	26	.02	.02	1048	0	0	13	1	26	5
33	27	.02	.02	1106	0	0	+ 4	1	26	5
34	Apr. 4	− 0.02	− 0.02	+1085	0	0	− 6	+1	−25	+ 5
35	95 Oct. 16.8	−27.48	− 0.12	+1020	+187	− 2	−19	+3	−15	+ 17
36	17	− 0.12	− 0.12	+1160	+ 1	− 2	−19	+3	−15	+ 17

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
				s						
10	+ 93	—1.15	+0.94	—0.03	+ 20	1.3	+13	11	11	4.5
11	7	1.13	.90	+ .83	+106	1.0	+53	11	11	2.5
12	141	1.13	.89	— .51	— 28	0.8	—10	11	10	1
13	93	1.08	.69	— .03	+ 17	1.0	+ 9	18	19	0.5
14	+175	—1.05	+0.57	—0.85	— 66	1.0	—33	25	25	0.5
							+ 4			
15	+103	—0.83	—0.71	—0.13	— 9	1.4	— 6	25	25	3.5 2
16	39	.83	.72	+ .51	+ 55	1.5	+41	25	25	4 3
17	151	.82	.77	— .61	— 58	2.0	—58	25	25	5 5
18	126	.81	.82	— .36	— 33	2.0	—33	25	25	5 4.5
19	88	.80	.84	+ .02	+ 5	1.0	+ 2	16	16	1 3
20	67	.80	.86	+ .23	+ 25	1.7	+21	25	25	4 3
21	126	.79	.87	— .36	— 34	1.8	—31	25	24	3.5 3.5
22	52	.76	.96	+ .38	+ 38	1.8	+34	25	25	3 3.5
23	93	.75	.97	— .03	— 3	1.7	— 3	25	25	3 3
24	58	.74	.98	+ .32	+ 32	1.4	+22	25	25	2.5 2.5
25	+131	—0.73	—0.99	—0.41	— 41	1.8	—37	25	25	4 4
							— 4			
26	+ 64	—0.12	+0.87	+0.26	+ 39	1.5	+29	25	23	2.5 2.5
27	90	.09	.78	.00	+ 12	1.6	+10	25	24	3 3
28	108	.08	.71	— .18	— 7	1.7	— 6	25	25	3.5 3
29	74	.08	.69	+ .16	+ 27	1.8	+24	25	25	3.5 3.5
30	+113	—0.07	+0.68	—0.23	— 12	1.7	—10	25	25	3.5 3
							+ 9			
31	+ 65	+0.22	—0.91	+0.25	+ 17	2.0	+17	25	25	5 5
32	41	.24	.94	+ .49	+ 41	2.0	+41	25	25	5 5
33	90	.24	.95	.00	— 9	1.7	— 8	25	25	3.5 3
34	+ 60	+0.26	—0.98	+0.30	+ 21	2.0	+21	25	25	4.5 5
							+18			
35	+191	+0.79	+1.00	—1.01	— 96	1.3	—62	10	25	3.5 2.5
36	+145	+0.80	+1.00	—0.55	— 50	1.7	—42	25	25	4 3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
37	'95, Oct. 21.7	+27.04	+32.26	+ 817	−184	+513	−19	+3	−16	+ 17
38	22	− 0.12	− 0.12	1100	+ 1	− 2	19	3	16	17
39	23	0.12	.12	1072	1	2	20	3	16	17
40	29	5.64	.12	1051	38	2	17	3	18	18
41	31	0.12	.12	1107	1	2	18	2	18	18
42	Nov. 4	.12	.12	1183	1	2	26	2	19	18
43	10	.12	.12	1074	1	2	21	2	21	18
44	11	− 0.12	− 0.12	+1086	+ 1	− 2	−21	+2	−21	+ 18
45	96 Mar. 17.3	− 0.12	− 0.12	+1048	+ 1	− 2	−14	+2	−46	+ 26
46	19	.12	.12	1130	1	2	14	2	46	26
47	21	.12	.12	1159	1	2	14	2	46	26
48	23	.12	.12	1066	1	2	14	2	46	26
49	24	.12	.12	1104	1	2	18	2	46	26
50	26	.12	.12	1137	1	2	18	2	46	26
51	30	.12	.12	1117	1	2	21	2	46	26
52	Apr. 4	.12	.12	1131	1	2	20	2	45	26
53	6	− 0.12	− 0.12	+1083	+ 1	− 2	−20	+2	−45	+ 27
				Rejected Observation.						
54	95 Mar. 30.3	+ 7.87	+ 1.77	+1357	− 54	+ 28	− 1	+1	−25	+ 5

1. Daylight illumination; star 91 ff; star 92 observed without screen; correction of −0s.05 sec δ, −0s.057, applied to DT to reduce to an observation with screen I. 2. Daylight illumination. 12. Observation of stars 91 and 92 on Nov. 16.7 lost because of failure of chronograph to run. 11, 12, 13, 14, 19. Images breaking frequently. 16. Observation through clouds. 37. Clouds spreading over the sky. Extremely poor observation; stars 91 and 92 invisible during a large part of the time they were in the field. Reject? 41. Images breaking at times.

For mean values of estimated magnitudes see the next preceding solution.

Normal Equations.

$$+131.34\,x + 15.17\,y - 18.79\,z - 0.58 = 0$$
$$+ 15.17\,x + 106.21\,y - 17.73\,z + 11.48 = 0$$
$$- 18.79\,x - 17.73\,y + 108.63\,z + 12.06 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	r	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
37	+ 131	+0.81	+1.00	—0.41	— 36	0.5	— 9	7	5	2	0
38	84	.81	1.00	+ .06	+ 11	1.3	+ 7	25	25	2.5	1
39	55	.81	1.00	+ .35	+ 40	1.3	+26	25	25	2.5	1.5
40	73	.83	0.98	+ .17	+ 22	1.7	+19	22	25	3	3
41	90	.83	.97	.00	+ 5	1.5	+ 4	25	25	4	2.5
42	157	.85	.96	— .67	— 62	2.0	—62	25	25	5	4.5
43	51	.86	.93	+ .39	+ 43	2.0	+43	25	25	4.5	5
44	+ 63	+0.86	+0.92	+0.27	+ 31	1.7	+26	25	25	3.5	3
							— 6				
45	+ 15	+1.21	—0.88	+0.75	+ 57	1.9	+54	25	25	4.5	4
46	97	1.22	.90	— .07	— 25	1.8	—22	25	25	3.5	3.5
47	126	1.22	.91	— .36	— 54	1.7	—46	25	25	3	3
48	33	1.23	.93	+ .57	+ 39	2.0	+39	25	25	5	5
49	67	1.23	.93	+ .23	+ 5	1.7	+ 4	25	25	4	3
50	100	1.24	.95	— .10	— 29	2.0	—29	25	25	5	5
51	77	1.25	.97	+ .13	— 5	2.0	— 5	25	25	5	5
52	93	1.26	.98	— .03	— 22	2.0	—22	25	25	5	5
53	+ 46	+1.27	—0.99	+0.44	+ 25	1.2	+15	25	25	2.5	1.5
							— 1				
				Rejected Observation.							
54	+ 311	+0.25	—0.96	—2.21	—230			19	16	4	3

53. Images breaking frequently; daylight illumination. 54. Sky clouding over rapidly. Star 89 not seen in time for observation; star 91 began as 8.3 in mag., then became too faint and invisible on some threads; star 92 observed without screen, est'd mag., 6.5 or fainter.

Assumed $D\alpha$ 1895.0 = $+78^s.090$ $d.D\alpha = +0^s.003$ $p_z = 103.62$

$x = + 0.029$ $d.D\mu = -0.010$ $[pnn.3] = 0.1751$

$y = - 0.096$ $[pvv] = 0.1732$

$z = + 0.101$ $\pi = +0''.07 \pm 0''.026$ $r = \pm 0^s.020$

Stars 90 and 91. $d.\Delta u = -0^s.009$, $\pi = +0''.06 \pm 0''.039$, $r_1 = \pm 0''.14$; 53 obs.

TABLE VII (Continued).

STARS 93, 94, 95.

No.	Date.	c_1'	c_2'	DT *	$\Delta_1 C.c_1'$ *	$\Delta_2 C.c_2'$ *	$D\tan\delta.n$ *	Rate. *	Precess. and Nutat. *	Prop. Mot. *
		s	s	− 68s						
1	'93, Nov. 2.7	− 1.61	0.00	− 306	− 10	0	+ 1	0	− 8	+ 37
2	5	0.01	.00	255	0	0	1	−1	8	37
3	6	0.00	.00	266	0	0	1	0	8	37
4	7	0.00	.00	225	0	0	1	1	7	37
5	13	9.77	.00	111	61	0	+ 1	0	7	36
6	16	5.35	0.00	249	33	0	0	−1	7	36
7	Dec. 3.6	− 1.72	− 7.26	− 355	− 11	+ 53	0	0	− 6	+ 34
8	94 Mar. 11.4	− 7.32	−12.86	− 389	− 45	+ 94	0	0	+ 4	+ 26
9	13	18.28	18.28	285	113	133		−1	5	25
10	15	3.48	9.04	290	22	66		0	5	25
11	17	3.95	9.04	371	24	66		1	5	25
12	29.3	3.48	9.04	315	21	66		0	5	24
13	Apr. 1	7.32	12.85	381	45	93		1	5	24
14	5	7.32	12.85	335	45	94		0	5	23
15	7	− 7.32	−12.85	− 345	− 45	+ 94	0	−1	+ 5	+ 23
16	94 Nov. 16.7	− 7.37	− 7.37	− 240	− 46	+ 54	0	0	− 7	+ 4
17	24	3.53	9.09	343	22	66	+ 1	−1	6	3
18	26.6	5.39	5.39	296	33	39	0	1	6	3
19	Dec. 2	7.37	7.37	181	46	54	1	1	6	3
20	3	16.35	16.35	322	101	119	1	1	6	3
21	4	3.45	3.45	271	21	25	1	1	6	3
22	5	− 7.29	−12.82	− 289	− 45	+ 94	+ 1	−1	− 5	+ 3
23	95 Mar. 26.3	−14.54	−14.54	− 279	− 90	+106	+ 1	−1	+ 6	− 7
24	27	18.26	18.26	321	113	133	0	1	6	7
25	Apr. 4	− 1.70	− 7.24	− 310	− 10	+ 53	0	−1	+ 6	− 8

TABLE VII (Continued).

LALANDE 16304.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{8}\sqrt{p}v_1'$ *	m_1	m_2	Images.
	-68^s			^{s}						
1	— 286	—1.16	+0.98	+0.36	+ 35	0.9	+16	10	11	3
2	226	1.15	.97	— .24	— 24	1.3	—16	11	11	5
3	236	1.15	.97	— .14	— 15	1.2	— 9	11	11	4
4	195	1.15	.97	—0.55	— 55	1.3	—36	11	11	4.5
5	142	1.13	.93	—1.08	—111	0.7	—39	5	11	2
6	254	1.12	.91	+0.04	+ 4	0.7	+ 2	8	11	0.5
7	— 285	—1.08	+0.75	+0.35	+ 33	1.5	+24	18	21	3.5
							— 8			
8	— 310	—0.81	—0.77	+0.60	+ 46	1.5	+34	15	18	4 4
9	236	.80	.79	— .14	— 28	1.3	—18	15	15	4 3
10	216	.80	.81	— .34	— 49	1.1	—27	17	20	2.5 1
11	300	.79	.83	+ .50	+ 36	1.1	+20	16	20	2.5 1
12	241	.76	.93	— .09	— 25	1.5	—19	17	20	3 3.5
13	305	.75	.95	+ .55	+ 40	1.4	+28	15	18	4 4
14	258	.74	.97	+ .08	— 9	1.3	— 6	15	18	3 3
15	— 269	—0.73	—0.97	+0.19	+ 3	1.4	+ 2	15	18	3.5 3.5
							+ 2			
16	— 235	—0.12	+0.91	—0.15	— 12	1.4	— 8	15	15	3.5 4
17	302	.10	.85	+ .52	+ 56	1.4	+39	17	20	3 3
18	294	.09	.83	+ .44	+ 47	0.9	+21	16	16	2 0
19	176	.08	.77	— .74	— 70	1.3	—46	15	15	3.5 3.5
20	307	.08	.75	+ .57	+ 60	0.9	+27	16	16	2 1
21	270	.07	.74	+ .20	+ 24	1.0	+12	17	17	2.5 1
22	— 242	—0.07	+0.73	—0.08	— 6	1.7	— 5	15	18	5 5
							+ 6			
23	— 264	+0.24	—0.91	+0.14	+ 4	1.7	+ 3	17	17	5 5
24	303	0.24	0.91	+ .53	+ 42	0.9	+19	15	15	2.5 1
25	— 270	+0.26	—0.96	+0.20	+ 10	1.5	+ 8	18	21	3 3
							+10			

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
26	'95, Oct. 22.8	−14.01	−32.90	− 259	− 87	+240	− 1	−3	−8	−26
27	29.7	14.64	14.64	257	91	107	1	3	7	27
28	31	3.55	9.12	222	22	67	1	3	7	27
29	Nov. 4	18.36	18.36	205	114	134	1	3	7	27
30	10	12.93	12.93	222	80	94	1	3	7	27
31	11	3.56	9.12	278	22	67	1	2	7	27
32	Dec. 4.6	− 3.56	− 9.12	− 274	− 22	+ 67	− 1	−3	−5	−30
33	96 Mar. 19.3	− 0.12	− 5.64	− 239	− 1	+ 41	− 1	−2	+6	−39
34	21	3.56	9.12	248	22	67	1	2	6	39
35	23	12.93	12.93	220	80	94	1	2	6	40
36	26	0.12	5.64	228	1	41	1	2	6	40
37	30	−18.36	18.36	240	−114	134	1	2	6	40
38	Apr. 4	+ 8.88	6.58	332	+ 55	48	1	2	6	40
39	6	−12.93	12.93	259	− 80	94	1	2	6	41
40	9	+12.72	−12.93	− 383	+ 79	+ 94	− 1	−2	+6	−41

1. Clouds. Est'd mags.: star 93, 8.5 and fainter, fff; star 95, 8.0 and fainter. 11. Star 93, f. 26. Daylight illumination. 40. Daylight illumination.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	8.15	6.15	7.90	2
6th	7.96	6.30	7.89	7

Normal Equations.

$$+74.20\,x + 16.06\,y - 4.64\,z + 2.15 = 0$$
$$+16.06\,x + 60.62\,y - 11.59\,z - 1.57 = 0$$
$$-4.64\,x - 11.59\,y + 60.59\,z - 4.89 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
26	— 144	+0.81	+1.00	—1.06	— 97	0.8	—39	15	6	2.5	1
27	279	.83	1.00	+0.29	+ 39	1.7	+33	17	17	5	5
28	215	.83	0.99	— .35	— 26	1.7	—21	17	20	5	5
29	223	.85	.98	— .27	— 17	1.3	—11	15	15	4.5	3
30	246	.86	.96	— .04	+ 4	1.7	+ 3	18	18	4.5	4.5
31	270	.86	.95	+ .20	+ 29	1.4	+20	17	20	4	3.5
32	— 268	+0.93	+0.74	+0.18	+ 26	1.4	+18	17	20	4	3.5
							0				
33	— 235	+1.22	—0.86	—0.15	— 21	1.5	—16	19	22	4	3
34	239	1.22	.87	— .11	— 16	1.5	—12	17	20	3.5	3
35	243	1.23	.89	— .07	— 13	1.7	—11	18	18	5	5
36	225	1.24	.91	— .25	— 30	1.8	—27	19	22	5	5
37	257	1.25	.94	+ .07	+ 2	1.3	+ 1	15	15	5	3.5
38	266	1.26	.97	+ .16	+ 12	1.7	+10	14	21	5	5
39	283	1.27	.97	+ .33	+ 27	1.4	+19	18	18	2	2.5
40	— 248	+1.27	—0.98	—0.02	— 7	1.4	— 5	18	18	4	2.5
							— 5				

Assumed $D\alpha$ 1895.0 = —68^s.250 $d.D\alpha$ = —0^s.004 p_z = 58.34

x = — 0.035 $d.D\mu$ = +0.005 $[pnn.3]$ = 0.0750

y = + 0.052 $[pvv]$ = 0.0752

z = + 0.088 π = +0″.07 ± 0″.030 r = ±0^s.015

	Obs. 1—25.		Obs. 26—40.	
y = +0.0510, assumed from the general solution.				
$d.D\alpha$	—0^s.005		—0^s.002	
π	+0″.11	±0″.044	+0″.02	±0″.039
r_1	±0^s.016		±0^s.014	

TABLE VII (Continued).

STARS 96, 97, 98.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	0s						
1	'94, Nov. 24.7	— 7.37	— 6.50	+ 318	—1118	+ 982	+ 2	0	— 3	— 4
2	26	+ 6.58	+ 6.58	+ 234	+ 998	— 990	3		3	4
3	Dec. 3.6	— 3.45	—12.69	—1279	— 523	+1917	5		3	3
4	4	7.29	7.29	+ 255	1106	1101	5		3	3
5	5	— 6.42	— 6.42	+ 278	— 974	+ 970	+ 5	0	— 3	— 3
6	95 Mar. 26.4	— 6.43	— 6.43	+ 235	— 975	+ 972	+ 3	0	+ 1	+ 9
7	27.3	12.70	7.30	+ 950	1926	1103	+ 1		1	10
8	Apr. 4	— 3.64	17.61	—2148	— 552	2661	— 1		1	10
9	9	+ 6.44	4.26	—1432	+ 977	664	2		1	11
10	14	— 5.84	—23.37	—2407	— 886	+3531	— 3	0	+ 2	+ 11
11	95 Oct. 31.7	— 7.40	— 8.94	— 117	—1123	+1351	— 4	0	—11	+ 31
12	Nov. 4	— 7.40	—15.95	—1188	—1123	+2410	6		11	32
13	10	+ 7.33	+ 0.12	— 749	+1112	— 18	5		11	32
14	11	+ 6.34	+ 6.34	+ 304	+ 962	— 954	5		11	33
15	23	—14.78	— 9.42	+ 934	—2242	+1423	5		12	34
16	Dec. 4.6	+ 7.19	— 0.08	— 808	+1091	+ 12	— 5	0	—12	+ 36
17	96 Mar. 17.4	+ 6.34	+ 6.34	+ 144	+ 962	— 954	— 3	0	— 7	+ 46
18	19	7.19	+ 7.19	+ 138	1091	—1084	3		7	46
19	21.3	7.19	— 5.42	—1646	1091	+ 819	3		7	46
20	23	7.19	+ 7.19	+ 180	1091	—1084	3		7	47
21	26	8.12	6.34	— 156	1232	954	4		7	47
22	30	+ 7.19	+ 7.19	+ 235	+1091	—1084	— 5	0	— 7	+ 47

TABLE VII (Continued).

o URSAE MAJORIS.

No.	$D\alpha$1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	0^s			^{s}							
1	+ 177	—0.10	+0.87	+0.27	+ 25	1.5	+19	15	17	4.5	4
2	238	.09	.85	— .34	— 37	1.0	—18	14	14	2.5	1.5
3	114	.08	.78	+ .90	+ 87	1.3	+57	17	12	4	4
4	249	.07	.77	— .45	— 47	1.5	—35	15	15	4.5	4.5
5	+ 273	—0.07	+0.75	—0.69	— 73	1.6	—58	17	17	5	5
							— 7				
6	+ 245	+0.24	—0.89	—0.41	— 69	1.6	— 55	17	17	5	5
7	+ 139	.24	.90	+0.65	+ 38	1.3	+ 25	12	15	4.5	3.5
8	— 29	.26	.95	+2.33	+205	1.3	+133	15	9	4.5	4
9	+ 199	.27	.97	+0.05	— 24	1.3	— 16	17	10	3.5	3
10	+ 248	+0.29	—0.99	—0.44	— 72	1.1	— 40	17	6	5	4.5
							+ 9				
11	+ 127	+0.83	+1.00	+0.77	+106	1.6	+85	15	14	5	5
12	114	.85	0.99	+0.90	+121	1.4	+85	15	10	5	4.5
13	361	.86	.97	—1.57	—128	1.3	—83	15	11	3	2.5
14	329	.86	.96	—1.25	— 96	1.6	—77	17	17	4.5	4.5
15	132	.90	.88	+0.72	+101	1.3	+66	11	15	4	3.5
16	+ 314	+0.93	+0.77	—1.10	— 81	1.3	—53	15	11	3	2.5
							+ 4				
17	+ 188	+1.21	—0.82	+0.16	+ 20	1.7	+17	17	17	5	5
18	181	1.22	.84	+ .23	+ 27	1.6	+22	15	15	4.5	4.5
19	300	1.22	.86	— .96	— 93	1.3	—60	15	16	4	3
20	224	1.23	.87	— .20	— 17	1.6	—14	15	15	4.5	4.5
21	158	1.24	.90	+ .46	+ 50	1.7	+42	18	17	5	5
22	+ 277	+1.25	—0.93	—0.73	— 70	1.5	—52	15	15	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
23	'96, Apr. 4.3	+ 5.55	+ 5.55	+ 97	+ 842	— 835	— 5	0	— 7	+ 48
24	9	+ 7.19	+ 7.19	+ 257	+1090	—1084	— 6	0	— 7	+ 48

7. Star 97, est'd mag., 8.2. 9. Stars 96 and 98, f. 10. Daylight illumination; stars 96 and 98, fff. 11. Magnitudes appear equal. 13. Images breaking.

Epoch.	Estimated Magnitudes.			No. of Ests.
3d	8.07	8.30	8.47	3
4th	7.97	8.22	8.08	6

Normal Equations.

$+50.08\,x + 35.99\,y - 6.35\,z - 2.30 = 0$

$+35.99\,x + 39.49\,y - 14.28\,z - 4.18 = 0$

$-6.35\,x - 14.28\,y + 40.07\,z - 4.37 = 0$

STARS 99, **100**, 101.

		s	s	— 70s						
1	'93, Nov. 2.7	0.00	0.00	— 457	0	0	+10	0	— 3	—204
2	3	.00	.00	410	0	0	10	0	3	203
3	5	.00	.00	524	0	0	10	—1	3	202
4	6	.00	.00	478	0	0	10	0	3	202
5	13	.00	.00	433	0	0	+10	0	2	199
6	14	.00	.00	470	0	0	— 1	1	2	198
7	16.7	.00	.00	512	0	0	1	0	— 2	197
8	Dec. 3.6	— .04	— .04	395	0	0	6	0	+ 1	189
9	12	.04	.04	485	0	0	8	—1	2	185
10	19	— 0.06	— 0.06	— 393	— 1	+ 1	— 9	0	+ 3	—182
11	94 Mar. 13.4	— 0.04	— 0.04	— 459	0	+ 1	+ 2	0	+10	—141
12	15	5.50	5.56	450	—26	+51	+ 1	0	10	140
13	29.3	9.04	0.04	468	—42	0	— 1	—1	9	133
14	Apr. 1	0.04	.04	448	0	0	2	0	9	132
15	5	.04	.04	530	0	0	1	0	9	129
16	7	.04	.04	445	0	0	1	— 1	9	129
17	12	— 0.04	— 0.04	— 555	0	0	— 1	0	+ 9	—126

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
23	+ 140	+1.26	—0.96	+0.64	+ 66	1.5	+50	14	14	5	5
24	+ 298	+1.27	—0.98	—0.94	— 91	1.5	—68	15	15	5	4.5
							— 8				

Assumed $D\alpha$ 1895.0 $= +^s 0.204$ $\quad d.D\alpha = -^s 0.017$ $\quad p_z = 32.29$

$x = -0.167$ $\quad d.D\mu = +0.033$ $\quad [pnn.3] = 0.3273$

$y = +0.330$ $\quad [pvv] = 0.3292$

$z = +0.200$ $\quad \pi = +0''.08 \pm 0''.055$ $\quad r = \pm 0^s.042$

LACAILLE 3386.

	— 70^s			^{s}						
1	— 654	—1.16	+0.99	+0.24	+ 11	0.7	+ 4	11	11	0.5
2	606	1.16	.99	— .24	— 37	1.1	—20	11	11	3
3	720	1.15	.98	+ .90	+ 77	1.1	+42	11	11	3
4	673	1.15	.98	+ .43	+ 29	1.0	+14	11	11	2.5
5	624	1.13	.95	— .06	— 18	0.9	— 8	11	11	2
6	672	1.13	.95	+ .42	+ 29	1.0	+14	11	11	2.5
7	712	1.12	.93	+ .82	+ 70	0.7	+24	11	11	0.5
8	589	1.08	.79	— .41	— 51	1.8	—46	25	25	4
9	677	1.05	.68	+ .47	+ 39	1.2	+23	25	25	1
10	— 581	—1.03	+0.59	—0.49	— 57	1.5	—43	25	25	2.5
							0			
11	— 587	—0.80	—0.74	—0.43	— 32	1.7	—27	25	25	4 3.5
12	554	.80	.77	— .76	— 65	1.2	—39	20	22	2.5 1
13	636	.75	.90	+ .06	+ 18	1.7	+15	20	25	2 3.5
14	573	.75	.92	— .57	— 44	1.4	—31	25	25	2.5 2
15	651	.74	.95	+ .21	+ 34	1.4	+24	25	25	2.5 2
16	567	.73	.96	— .63	— 48	1.4	—34	25	25	3 2
17	— 673	—0.72	—0.98	+0.43	+ 57	1.7	+48	25	25	4 3.5
							— 6			

25 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
18	'94, Nov. 24.7	—25.33	— 5.61	— 541	—119	+ 51	+ 4	—1	— 8	— 18
19	26	0.69	0.09	699	0	1	4	1	8	17
20	Dec. 2	0.09	0.09	612	0	1	10	1	7	14
21	4.6	27.37	0.01	551	129	0	9	1	7	13
22	5	5.53	5.53	612	— 26	+ 50	9	1	7	13
23	14	— 0.01	— 0.01	— 534	0	0	+ 9	—1	— 5	— 8
24	95 Apr. 9.3	— 0.02	— 0.02	— 740	0	0	— 4	0	+ 2	+ 48
25	10	0.12	— 0.02	684	0	0	4	—1	2	48
26	13	— 5.54	+ 7.29	— 645	— 26	— 66	— 4	—1	+ 1	+ 50
27	95 Oct. 31.7	—18.36	— 5.64	— 693	— 86	+ 51	— 7	—2	—18	+146
28	Nov. 4	25.36	0.12	685	119	1	8	2	17	149
29	11	5.64	5.64	803	27	51	9	2	17	152
30	23	10.97	0.12	686	52	1	9	2	15	158
31	Dec. 2	12.25	12.93	772	58	118	10	2	14	162
32	4.6	0.12	— 0.12	758	1	+ 1	10	2	14	163
33	5	— 0.12	+ 0.51	— 790	— 1	— 5	—11	—2	—14	+164
34	96 Mar. 19.4	— 3.72	— 3.72	— 767	— 17	+ 34	— 9	—2	— 4	+214
35	23.3	5.64	5.64	870	27	51	9	2	4	216
36	26	12.93	0.12	667	61	1	10	2	4	217
37	30	0.12	0.12	813	1	1	10	2	4	218
38	Apr. 4	3.56	2.41	814	17	22	10	2	4	221
39	9	—12.93	— 0.12	— 695	— 61	+ 1	—10	—2	— 5	+224

1. Images faint and diffuse. 9. Images very diffuse. 14. Star 99, f. 25. Star 99, fff; star 101, ff. Clouds near. 26. Daylight illumination; star 99, ff. Clouds. 27. Images of stars 100 and 101 elongated at 170°? 28. Images very diffuse.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	8.05	7.32	7.65	4
6th	7.90	7.12	7.44	5

Normal Equations.

$$+71.82\,x + 2.47\,y + 0.91\,z - 6.24 = 0$$
$$+ 2.47\,x + 56.82\,y - 7.98\,z - 6.21 = 0$$
$$+ 0.91\,x - 7.98\,y + 54.88\,z + 7.31 = 0$$

Stars 100 and 101.

	All observations.	'93, Nov.—'94, Dec.	'95, Apr.—'96, Apr.
$d.\Delta\mu$	+0s.007	+0s.021	+0s.036
π	+0″.03 ±0″.045	+0″.04 ±0″.061	+0″.02 ±0″067
r_1	±0″.16	±0″.16	±0″.16
No. of Obs.	40	24	16

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
18	— 632	—0.10	+0.87	+0.02	— 1	1.0	0	11	22	3.5	2
19	720	.09	.86	+ .90	+ 88	1.7	+75	25	25	3	3
20	623	.08	.80	— .07	— 10	1.7	— 8	25	25	3	3
21	692	.07	.78	+ .62	+ 61	0.9	+27	10	25	2.5	0.5
22	600	.07	.77	— .30	— 31	1.6	—25	22	22	4.5	3.5
23	— 539	—0.04	+0.66	—0.91	— 91	1.1	—50	25	25	2	0.5
							+ 3				
24	— 694	+0.27	—0.97	+0.64	+ 87	1.1	+48	19	19	3	1.5
25	639	0.28	0.97	+ .09	+ 32	1.2	+19	25	25	4	2.5
26	— 691	+0.28	—0.98	+0.61	+ 83	1.4	+58	22	15	3.5	2.5
							+42				
27	— 609	+0.83	+1.00	—0.21	— 16	1.5	—12	15	22	5	3.5
28	681	.85	0.99	+ .51	+ 56	0.9	+25	11	25	3.5	0.5
29	655	.86	.97	+ .25	+ 30	1.2	+18	22	22	4	1.5
30	605	.90	.89	— .25	— 21	1.5	—16	19	25	3	2.5
31	576	.92	.80	— .54	— 47	1.1	—26	17	18	3	1.5
32	621	.93	.78	— .09	— 1	1.7	— 1	25	25	3.5	3.5
33	— 659	+0.93	+0.77	+0.29	+ 36	1.6	+29	25	19	4	3
							+ 2				
34	— 551	+1.22	—0.82	—0.79	— 49	1.2	—29	23	23	2.5	1
35	645	1.23	.86	+0.15	+ 45	1.5	+34	22	22	4	3
36	526	1.24	.88	—1.04	— 74	1.6	—59	18	25	5	3
37	611	1.25	.91	—0.19	+ 12	1.5	+ 9	25	25	4.5	2.
38	604	1.26	.95	—0.26	+ 5	1.6	+ 4	20	23	5	3.5
39	—548	+1.27	—0.97	—0.82	— 50	1.5	—38	18	25	3.5	2.5
							—13				

Assumed $D\alpha$ 1895.0 = $-70^s.630$ $\quad d.D\alpha = +0^s.009$ $\quad p_z = 53.73$

$x = +0.086$ $\quad d.D\mu = +0.009$ $\quad [pnn.3] = 0.1631$

$y = +0.089$ $\quad [pvv] = 0.1624$

$z = -0.122$ $\quad \pi = -0''.08 \pm 0''.041$ $\quad r = \pm 0^s.023$

	Obs. 1—23.	Obs. 24—39.
$d.D\alpha$	$+0^s.002$	$-0^s.076$
$d.D\mu$	$-0^s.005$	$+0^s.094$
π	$-0''.10 \pm 0''.059$	$-0''.04 \pm 0''.050$
r	$\pm 0^s.024$	$\pm 0^s.019$

TABLE VII (Continued).

STARS 102, **103**, 104.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	+108s *	*	*	*	*	*	*
		s	s							
1	'93, Nov. 2.7	+ 0.01	− 2.75	+2977	+ 1	− 62	+132	+1	+ 88	−649
2	3	.01	+ 0.01	2443	1	0	130	0	85	648
3	5	.01	.01	2503	1	0	130	1	80	645
4	6	.01	.01	2654	0	0	129	1	78	643
5	7	.01	.35	2381	1	+ 8	128	0	75	642
6	13	.01	.01	2389	1	0	+126	1	59	632
7	16	+ 0.01	+ 0.01	2683	+ 1	0	− 11	0	52	628
8	Dec. 3.6	− 4.28	− 2.75	3212	−339	− 62	− 67	1	+ 9	601
9	12	− 4.84	− 2.75	3334	−383	− 62	+104	0	− 13	587
10	19	+10.31	+ 0.62	+2244	+816	+ 14	+116	+1	− 30	−577
11	94 Mar. 15.4	+ 7.27	−12.72	+2210	+576	−286	+ 18	+1	− 94	−445
12	29.3	− 2.75	− 2.75	2772	−218	− 62	− 15	0	74	424
13	Apr. 1	+ 6.42	+ 1.75	1783	+508	+ 39	24	1	70	420
14	5	6.42	0.01	1959	508	0	9	0	64	414
15	7	0.01	0.01	2530	1	0	9	1	60	410
16	12	+ 6.42	+ 0.01	+1888	+508	0	− 13	+1	− 51	−403
17	94 Nov. 24.7	− 2.80	− 0.04	+2312	−222	− 1	+ 54	+2	− 68	− 56
18	Dec. 3	+11.55	+ 0.04	756	+914	+ 1	126	1	91	42
19	4	6.07	0.96	1468	481	22	116	2	93	41
20	5	6.45	1.78	1328	511	40	113	1	96	39
21	14.6	6.45	1.79	1497	511	40	106	2	118	26
22	18	+ 6.45	+ 1.78	+1414	+511	+ 40	+114	+2	−128	− 19
23	95 Apr. 4.3	+ 6.44	+ 0.03	+1475	+510	+ 1	− 36	+2	−163	+145
24	9	3.40	3.40	1778	269	76	56	1	153	153
25	13	+ 6.44	+ 1.77	+1314	+510	+ 40	− 64	+1	−147	+159

TABLE VII (Continued).

A. OE. 9342, *prec.*

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	n_1' †	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 109^s			^{s}							
1	+1488	−1.16	+1.00	−0.53	−367	1.0	−184	13	11	2.5	
2	1011	1.16	1.00	− .05	+110	1.2	+ 66	13	13	3	
3	1070	1.15	1.00	− .11	+ 50	1.5	+ 38	13	13	5	
4	1219	1.15	0.99	− .26	−100	1.5	− 75	13	13	4.5	
5	951	1.15	.99	+ .01	+168	1.4	+118	13	12	4	
6	944	1.13	.97	+ .02	+172	1.1	+ 95	13	13	2.5	
7	1097	1.12	.96	− .14	+ 18	1.2	+ 11	13	13	3	
8	1153	1.08	.84	− .19	− 48	1.1	− 26	10	11	3	
9	1393	1.05	.74	− .43	−297	1.3	−198	17	11	3	
10	+1584	−1.03	+0.66	−0.62	−494	0.5	−124 − 27	18	13	1.5	
11	+ 980	−0.80	−0.72	−0.02	+ 15	1.2	+ 9	15	12	4	3
12	979	.76	.87	− .02	+ 4	1.1	+ 2	11	11	3.5	3.5
13	817	.75	.89	+ .14	+164	1.5	+123	17	14	5	5
14	980	.74	.92	− .02	− 2	1.6	− 2	17	13	4.5	4.5
15	1053	.73	.93	− .09	− 76	1.3	− 49	13	13	4	4
16	+ 930	−0.72	−0.96	+0.03	+ 44	1.6	+ 35 + 20	17	13	5	5
17	+1021	−0.10	+0.91	−0.06	− 14	1.2	− 8	11	13	4.5	4
18	665	.08	.84	+ .30	+337	0.8	+135	20	13	4	3
19	955	.07	.83	.00	+ 45	0.7	+ 16	16	13	4.5	4.5
20	858	.07	.82	+ .10	+142	1.6	+114	17	14	5	5
21	1012	.04	.72	− .05	− 21	1.2	− 13	17	14	3	3
22	+ 934	−0.03	+0.67	+0.03	+ 54	1.6	+ 43 + 48	17	14	4.5	4.5
23	+ 934	+0.26	−0.91	+0.03	− 58	1.5	− 44	17	13	4.5	4.5
24	1068	0.27	0.95	−0.11	−195	1.4	−136	15	15	4.5	4
25	+ 813	+0.28	−0.97	+0.15	+ 58	1.4	+ 41	17	14	4	3

† The absolute terms of the equations were not multiplied by 10 in the solution and are given here in their true magnitude.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
26	'95, Apr. 14.3	+ 6.44	+ 1.77	+1342	+510	+ 40	— 64	+1	—145	+161
27	17	+ 6.38	+ 1.71	+1186	+505	+ 38	— 64	+1	—140	+165
28	95 Oct. 31.7	—10.98	—10.98	+2793	—870	—247	—160	+3	—103	+467
29	Nov. 4	+ 6.34	0.07	1303	+502	2	146	3	113	473
30	10	4.85	— 0.07	1195	384	— 2	121	3	128	483
31	11	3.30	+ 6.03	1261	261	+136	121	3	130	484
32	23	+10.76	+10.76	573	+852	+242	126	3	160	502
33	Dec. 4	— 0.07	— 0.07	1793	— 6	— 1	139	3	188	519
34	5.6	+ 4.85	— 0.07	+1284	+384	— 1	—139	+3	—190	+520

1. Observed through light clouds; star 103, f. 10. Images unsteady and difficult to observe. 17, 18. Star 103, fff. 21. Star 103, ff. 27. Daylight illumination; star 103, fff. 30. Images breaking at times. 33. Star 103, est'd mag., 8.2.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	7.20	8.50	7.00	2

Normal Equations.

$$+59.98\,x - 10.15\,y + 14.81\,z - 1.17 = 0$$
$$-10.15\,x + 37.36\,y + 1.13\,z + 3.69 = 0$$
$$-14.81\,x + 1.13\,y + 49.80\,z - 2.29 = 0$$

STARS 105, **106**, 107.

				−62s						
		s	s							
1	'93, Nov. 5.7	—27.40	—27.40	—2139	—1754	+1636	+ 8	0	+ 6	—101
2	6	4.28	10.90	2654	274	651	+ 8	0	6	100
3	14	25.28	6.45	955	1618	385	— 1	+1	5	99
4	16	—14.70	—10.90	—1952	— 941	+ 651	— 1	0	+ 5	— 98
5	94 Apr. 1.3	—18.26	— 9.02	—1741	—1169	+ 538	— 2	0	+19	— 66
6	5	27.40	16.12	1621	1754	962	0	0	19	65
7	12	—21.79	—10.89	—1680	—1395	+ 650	— 1	+1	+20	— 64
8	94 Nov. 26.7	—12.90	—12.90	—2267	— 826	+ 770	+ 4	+1	—12	— 8
9	Dec. 2	8.74	8.74	2208	559	522	10	1	12	7
10	5	27.37	5.53	937	1752	330	8	1	12	6
11	14.6	—21.76	— 5.77	—1220	—1393	+ 344	+ 8	+1	—12	— 4

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ †	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
26	+ 845	+0.29	—0.97	+0.12	+ 26	1.6	+21	17	14	5	4.5
27	+ 691	+0.30	—0.98	+0.27	+177	1.0	+89	17	14	5	5
							—21				
28	+ 883	+0.83	+1.00	+0.08	+ 34	1.5	+26	14	14	5	5
29	1020	.85	1.00	— .06	—105	1.6	—84	17	13	5	5
30	814	.86	0.98	+ .15	+ 99	1.2	+59	16	13	3	2.5
31	894	.86	.98	+ .07	+ 18	1.4	+12	15	11	5	5
32	886	.90	.93	+ .07	+ 19	1.3	+13	14	14	4	4
33	981	.93	.83	— .02	— 84	1.5	—63	13	13	5	5
34	+ 861	+0.93	+0.82	+0.10	+ 36	1.6	+29	16	13	5	5
							— 1				

Assumed $D\alpha$ 1895.0 $= +^{s}109.960$ $d.D\alpha = -^{s}0.010$ $p_z = 45.77$

$x = -\ 0.010$ $d.D\mu = -0.103$ $[pnn.3] = 0.94$

$y = -\ 0.103$ $[pvv] = 0.96$

$z = +\ 0.052$ $\pi = +0''.13 \pm 0''.044$ $r = \pm 0^{s}.058$

† The absolute terms of the equations for stars 99, 100, 101 were not multiplied by 10 and are given here in their true magnitude.

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	— 64s			s							
1	— 344	—1.15	+1.00	+0.04	— 20	1.1	—11	10	10	4	
2	363	1.15	1.00	+ .23	— 1	1.3	— 1	10	14	4.5	
3	282	1.13	0.97	— .58	— 82	0.9	—37	11	17	1	
4	— 336	—1.12	+0.97	—0.04	— 27	1.2	—16	11	14	3.5	
							—16				
5	— 421	—0.75	—0.88	+0.81	+ 20	1.7	+17	15	20	5	5
6	459	0.74	0.91	+1.19	+ 58	1.5	+44	10	17	4.5	5
7	— 469	—0.72	—0.95	+1.29	+ 67	1.7	+57	13	19	5	5
							+39				
8	— 338	+0.09	+0.91	—0.02	+ 10	1.2	+ 6	18	18	2.5	2
9	253	.08	.86	— .87	— 77	1.1	—42	19	19	3	2
10	368	.07	.83	+ .28	+ 37	1.5	+28	10	22	5	5
11	— 276	+0.04	+0.73	—0.64	— 59	1.4	—41	13	23	3	3
							—12				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
12	'95, Apr. 4.3	—25.26	— 5.54	—1055	—1617	+ 331	— 3	+1	+ 2	+ 23
13	10	14.54	14.54	2123	931	868	3	0	4	24
14	14	—25.26	—16.34	—1618	—1617	+ 975	— 5	0	+ 4	+ 25
15	95 Oct. 29.8	—11.58	—19.66	—2663	— 741	+1174	— 7	+2	—24	+ 73
16	Nov. 10.7	33.13	31.04	2138	2120	1853	9	2	25	76
17	23	—12.93	—10.97	—2271	— 829	+ 655	— 9	+2	—27	+ 79
18	96 Apr. 3.3	— 5.64	— 5.64	—2416	— 361	+ 337	— 9	+2	—14	+111
19	14	— 5.64	— 5.64	—2412	— 361	+ 337	— 9	+1	—12	+114

1. Star 106, est'd mag., 8.5. 2. Star 106, est'd mag., 7.8 to 8.0. 9. Image of star 106 very diffuse on E threads, invisible on C threads. 13. Star 106, fff; star 107, est'd mag., 8.0. Clouds. 15. Images breaking; star 106, ff.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	6.5	8.0	6.8	1
6th	7.0	8.3	7.5	1

Normal Equations.

$$+33.96\,x + 0.65\,y - 2.09\,z + 5.41 = 0$$
$$+ 0.65\,x + 23.80\,y - 4.55\,z - 5.92 = 0$$
$$- 2.09\,x - 4.55\,y + 28.64\,z - 6.44 = 0$$

STARS 108, 109, 110.

		s	s	+26s						
1	'93, Dec. 3.6	—27.40	—13.48	+1551	— 899	+ 499	+ 3	0	+ 1	— 86
2	12	11.10	+34.32	2626	364	—1270	— 5	0	1	84
3	19	—18.30	— 5.58	+1437	— 600	+ 206	— 4	0	+ 2	— 82
4	94 Mar. 29.4	—18.28	— 0.04	+1732	— 600	+ 1	+ 1	0	0	— 61
5	Apr. 7.3	—18.28	— 0.04	+1695	— 600	+ 1	0	0	— 1	— 59
6	94 Nov. 16.7	— 5.61	— 7.87	+ 972	— 184	+ 291	— 3	0	+ 4	— 10
7	Dec. 3	18.25	0.01	1576	599	0	5	0	6	6
8	4	18.25	0.01	1589	599	0	5	+1	6	6
9	18.6	—21.52	— 0.01	+1703	— 706	0	— 5	0	+ 7	— 3

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
				^{s}							
12	— 318	+0.26	—0.90	—0.22	— 53	1.5	—40	11	22	4.5	4.5
13	161	0.28	0.94	—1.79	—211	0.5	—53	17	17	4	4
14	— 236	+0.29	—0.96	—1.04	—135	1.3	—82	11	16	4.5	4.5
							—60				
15	— 186	+0.83	+1.00	—1.54	—118	0.7	—41	18	14	3	2
16	361	0.86	0.99	+0.21	+ 58	1.1	+32	7	8	4	4
17	— 400	+0.90	+0.93	+0.60	+ 96	1.5	+72	18	19	3.5	3.5
							+21				
18	— 350	+1.26	—0.90	+0.10	+ 9	1.7	+ 8	22	22	4	4
19	— 342	+1.29	—0.96	+0.02	+ 1	1.7	+ 1	22	22	4	4
							+ 4				

Assumed $D\alpha$ 1895.0 = $-64^s.340$ $\quad d.D\alpha = -0^s.015$ $\quad p_z = 27.65$

$x = -0.149$ $\quad d.D\mu = +0.030$ $\quad [pnn.3] = 0.1262$

$y = +0.303$ $\quad [pvv] = 0.1264$

$z = +0.262$ $\quad \pi = +0''.14 \pm 0''.059$ $\quad r = \pm 0^s.030$

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	+26^s			^{s}							
1	+1069	—1.07	+0.86	—0.39	— 75	1.2	—45	10	17	2.5	
2	904	1.05	0.77	+1.26	+ 92	0.8	+37	11	6	2.5	
3	+ 959	—1.03	+0.68	+0.71	+ 38	1.5	+28	15	22	3.5	
							+ 7				
4	+1073	—0.76	—0.85	—0.43	— 47	1.8	—42	15	25	4.5	4.5
5	+1036	—0.73	—0.92	—0.06	— 8	1.8	— 7	15	25	4.5	4.5
							—24				
6	+1070	—0.12	+0.97	—0.40	— 55	1.4	—38	22	19	2.5	2.5
7	972	.08	.86	+ .58	+ 46	1.4	+32	15	25	2.5	2.5
8	986	.07	.85	+ .44	+ 32	1.6	+26	15	25	4	3.5
9	+ 996	—0.03	+0.69	+0.34	+ 25	1.8	+22	13	25	4.5	4.5
							+10				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
10	'95, Apr. 9.3	—18.26	— 0.02	+1602	— 600	+ 1	+ 2	0	+ 4	+ 22
11	13	27.38	+14.53	2425	898	—538	3		3	22
12	17	—21.59	— 0.08	+1718	— 708	+ 3	+ 3	0	+ 3	+ 23
13	95 Nov. 11.7	—12.93	— 0.12	+1415	— 424	+ 4	+ 5	+1	+ 8	+ 69
14	Dec. 4	27.48	0.12	1813	901	4	6	1	10	75
15	5	—23.43	— 0.12	+1741	— 768	+ 4	+ 6	+1	+10	+ 75
16	96 Apr. 9.3	— 0.12	— 0.12	+ 945	— 4	+ 4	+ 6	+1	+ 8	+102
17	15	— 0.12	— 0.12	+ 973	— 4	+ 4	+ 8	+1	+ 8	+103

4. Observed as north zenith stars.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	6.07	6.40	7.40	3
6th	6.25	6.60	7.65	2

Normal Equations.

$$+43.84\,x + 9.57\,y - 1.61\,z - 3.48 = 0$$
$$+ 9.57\,x + 28.62\,y - 4.85\,z - 7.74 = 0$$
$$- 1.61\,x - 4.85\,y + 34.82\,z + 6.18 = 0$$

STARS 111, 112, 113.

		s	*s*	+ 69*s*						
1	'93, Nov. 2.8	+ 0.01	— 4.28	+2584	+ 1	+ 228	+43	0	+32	—420
2	3	0.00	5.35	2484	0	285	43	+1	31	419
3	5	— 4.28	2.75	2967	— 353	147	43	0	30	417
4	6	+ 0.01	1.34	2765	+ 1	71	43	0	29	416
5	7.7	.01	1.34	2736	1	71	43	1	28	415
6	13	.01	4.28	2622	1	228	+43	0	24	409
7	14	.01	— 4.28	2766	1	+ 228	— 3	1	23	408
8	16	+ 0.01	+ 0.01	2822	+ 1	— 1	— 3	0	22	406
9	Dec. 12	— 3.47	—19.58	+1997	— 286	+1044	+39	+1	+ 2	—380
10	94 Mar. 29.4	—16.12	—30.96	+2386	—1330	+1650	— 6	0	—24	—274
11	Apr. 1	+12.80	0.00	+1618	+1056	0	— 8	+1	—23	—271

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
10	+1031	+0.27	−0.93	−0.01	+ 20	1.5	+15	15	25	4	3
11	1017	0.28	0.96	+0.13	+ 36	1.3	+23	10	17	4	3.5
12	+1042	+0.30	−0.97	−0.12	+ 11	1.8	+10	13	25	5	5
							+16				
13	+1078	+0.86	+0.99	−0.48	− 39	1.9	−37	18	25	4.5	4 5
14	1008	0.93	0.85	+0.22	+ 34	1.4	+24	10	25	4	3.5
15	+1069	+0.93	+0.84	−0.39	− 27	1.6	−22	12	25	4.5	4.5
							−12				
16	+1062	+1.27	−0.94	−0.32	+ 14	2.0	+14	25	25	5	5
17	+1093	+1.29	−0.97	−0.63	− 16	2.0	−16	25	25	4.5	4.5
							− 1				

Assumed $D\alpha$ 1895.0 $= +27^s.030$ $\quad d.D\alpha = +0^s.002$ $\quad p_z = 34.00$

$x = +0.022$ $\quad d.D\mu = +0.024$ $\quad [pnn.3] = 0.0536$

$y = +0.239$ $\quad [pvv] = 0.0536$

$z = -0.143$ $\quad \pi = -0''.08 \pm 0''.041$ $\quad r = \pm 0^s.021$

Stars 108 and 109. $d.\Delta u = +0^s.013$, $\pi = -0''.09 \pm 0''.062$, $r_1 = \pm 0''.15$; 17 obs.

LALANDE 18115, *prec.*

	+ 71^s										
				^{s}							
1	+ 428	−1.16	+1.00	+0.02	+ 8	0.9	+ 4	13	10	2	
2	425	1.16	1.00	+ .05	+ 11	1.0	+ 6	11	8	3	
3	417	1.15	1.00	+ .13	+ 19	1.1	+10	10	11	4	
4	493	1.15	1.00	− .63	− 57	1.4	−40	13	12	5	
5	465	1.15	1.00	− .35	− 29	1.4	−20	13	12	5	
6	509	1.13	0.99	−0.79	− 73	1.1	−40	13	10	3	
7	608	1.13	.99	−1.78	−172	0.5	−43	13	10	2.5	
8	435	1.12	.98	−0.05	+ 1	1.2	+ 1	13	13	3.5	
9	+ 417	−1.05	+0.80	+0.13	+ 16	1.3	+10	17	8	3.5	
							−12				
10	+ 402	−0.76	−0.82	+0.28	− 6	1.2	− 4	17	8	4	3
11	+ 373	−0.75	−0.85	+0.57	+ 22	1.5	+16	18	11	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
12	'94, Apr. 5.3	+12.80	− 3.37	+1431	+1056	+ 180	− 3	0	−21	−267
13	7	12.80	− 1.61	1479	1056	+ 86	4	+1	21	265
14	12	+11.52	+ 0.01	1753	+ 950	− 1	5	.0	18	260
15	23	−21.78	−27.40	3043	−1797	+1460	7	0	13	249
16	24	−12.85	−27.40	+2183	−1060	+1460	− 9	+1	−12	−248
17	94 Nov. 24.7	+11.47	− 0.04	+1494	+ 946	+ 2	+21	+1	−18	− 36
18	26	3.79	1.23	2113	313	66	21	1	20	34
19	Dec. 3	11.55	− 2.73	1376	953	+ 146	45	1	25	27
20	4	+11.55	+ 0.04	1327	+ 953	− 2	41	1	26	26
21	5	−21.76	−27.37	2822	−1795	+1459	41	1	26	25
22	14.6	+11.55	− 2.72	1421	+ 953	+ 145	39	1	33	16
23	18	+11.55	+ 0.04	+1549	+ 953	− 2	+41	+1	−36	− 12
24	95 Apr. 4.3	+11.54	+ 1.39	+1499	+ 952	− 74	−13	+1	−55	+ 94
25	9	11.54	+ 0.03	1408	952	− 2	20	0	52	99
26	13	11.54	− 1.32	1428	952	+ 70	23	1	51	103
27	14	12.31	+ 0.28	1408	1016	− 15	22	0	50	104
28	17	+11.48	− 0.03	+1414	+ 947	+ 2	−24	+1	−49	+107
29	95 Nov. 4.8	+11.44	− 0.08	+1358	+ 944	+ 4	−51	+2	−36	+306
30	10.7	12.72	1.42	1155	1049	76	48	2	40	312
31	11	11.44	0.07	1338	944	4	44	2	41	313
32	23	12.72	0.08	1083	1049	4	46	2	50	325
33	Dec. 2	15.94	1.75	723	1315	93	46	2	57	334
34	4	11.44	0.07	1269	944	4	50	2	57	336
35	5	+12.72	− 0.07	+1167	+1049	+ 4	−50	+2	−59	+337
36	96 Apr. 3.3	+11.44	− 0.07	+1257	+ 944	+ 4	−43	+2	−87	+455
37	9	11.44	0.07	1143	944	4	50	2	84	461
38	14	+11.44	− 0.07	+1137	+ 944	+ 4	−63	+1	−81	+466

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
12	+ 376	—0.74	—0.88	+0.54	+ 18	1.5	+14	18	9	4.5	5
13	332	.73	.90	+ .98	+ 63	1.2	+38	18	10	3	2.5
14	419	.72	.93	+ .11	— 25	1.7	—21	20	13	5	5
15	437	.69	.98	—0.07	— 44	1.2	—26	13	10	5	5
16	+ 315	—0.69	—0.99	+1.15	+ 78	1.2	+47	18	10	5	5
							+ 9				
17	+ 410	—0.10	+0.95	+0.20	+ 44	1.6	+ 35	20	13	4.5	4
18	460	.09	.93	—0.30	— 7	0.9	— 3	14	11	2.5	1.5
19	469	.08	.88	—0.39	— 16	1.2	— 10	20	11	3	2.5
20	268	.07	.87	+1.62	+185	1.6	+148	20	13	4.5	4.5
21	477	.07	.87	—0.47	— 24	1.3	— 16	13	10	4	5
22	510	.04	.78	—0.80	— 60	1.3	— 39	20	11	3	3
23	+ 494	—0.03	+0.73	—0.64	— 45	1.6	— 36	20	13	4	4
							+ 11				
24	+ 404	+0.26	—0.87	+0.26	+ 9	1.5	+ 7	20	12	4	4.5
25	385	.27	.91	+ .45	+ 27	1.5	+20	20	13	4	3.5
26	480	.28	.94	— .50	— 68	1.1	—37	20	12	3.5	2
27	441	.29	.95	— .11	— 30	1.5	—22	19	12	4.5	4.5
28	+ 398	+0.30	—0.96	+0.32	+ 13	1.7	+11	20	13	5	5
							— 4				
29	+ 527	+0.84	+1.00	—0.97	— 56	1.4	—39	20	13	4.5	3.5
30	506	.86	1.00	— .76	— 34	1.3	—22	18	12	4	4
31	515	.86	0.99	— .85	— 43	1.7	—37	20	13	5	5
32	367	.90	.96	+ .63	+105	1.3	+68	18	11	4	3.5
33	364	.92	.89	+ .66	+107	0.3	+16	13	6	2	0
34	448	.93	.87	— .18	+ 23	1.4	+16	20	13	3.5	3
35	+ 450	+0.93	+0.87	—0.20	+ 21	1.5	+16	18	13	2.5	4
							+ 3				
36	+ 532	+1.26	—0.87	—1.02	—101	1.6	—81	20	13	4.5	4.5
37	420	1.27	0.92	+0.10	+ 10	1.7	+ 8	20	13	5	5
38	+ 408	+1.29	—0.95	+0.22	+ 22	1.7	+19	20	13	4.5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	+33s						
39	'96, Apr. 15.3	+11.44	− 0.07	+1165	+ 944	+ 4	−69	+2	−81	+467
40	21	+11.44	− 0.07	+1078	+ 944	+ 4	−65	+1	−78	+473
	41. Rejected Observation.									
41	93 Dec. 19.6	−27.42	−33.07	+3493	−2262	+1763	+41	0	− 2	−373

1. Daylight illumination. No screen employed; correction, −0s.024 sec δ = −0s.040, applied to DT in consequence. 2. Daylight illumination. 7. Images of stars near zenith break badly on this date. 15. Daylight illumination; threads not in good focus. 16. Daylight illumination; threads somewhat out of focus. Image of star 112 faint but sharp.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
5th	6.70	7.70	7.57	3	$+73.27\,x + 5.79\,y + 1.54\,z - 1.29 = 0$
6th	6.97	7.83	7.60	3	$+ 5.79\,x + 51.73\,y - 11.19\,z - 6.55 = 0$
					$+ 1.54\,x - 11.19\,y + 62.47\,z - 14.21 = 0$

STARS 114, **115**, 116.

				+33s						
		s	s							
1	'93, Nov. 5.8	+ 0.01	+ 0.01	+2288	+ 1	− 1	−54	0	−29	−240
2	6	.01	0.01	2229	0	1	54		28	239
3	7	+ .01	+ 0.01	2381	+ 1	− 1	−54		28	239
4	14.7	− .64	− 6.17	1639	− 37	+592	+ 3		21	235
5	16	+ 0.01	+ 0.01	2201	+ 1	− 1	3		19	234
6	Dec. 3	+ 8.56	+ 1.40	1943	+ 499	−134	+29		− 3	223
7	12	− 0.04	− 0.04	2235	− 2	+ 4	−44		+ 4	218
8	19.6	5.11	0.06	2477	298	6	48		10	214
9	94 Jan. 1	0.06	0.06	2237	3	6	17		19	207
10	7	−17.28	− 5.42	+2677	−1007	+520	−36	0	+23	−204
11	94 Apr. 1.4	− 0.04	− 0.04	+2042	− 2	+ 4	+ 9	0	+19	−156
12	5	0.04	0.04	2064	2	4	2		17	154
13	7.3	− 0.04	− 1.81	+1981	− 2	+174	+ 4	0	+15	−152

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
39	+ 432	+1.29	−0.95	$-0^s.02$	− 2	1.6	− 2	20	13	4.5 4
40	+ 357	+1.31	−0.98	+0.73	+ 73	1.0	+36	20	13	2 1
							− 4			
				41. Rejected Observation.						
41	+ 660	−1.03	+0.72	−2.30	−229			10	7	3.5

20. A comparison of the differences between the stars, with respect to their transits on the individual threads, with both observations 17 and 22, show that star 112 was observed here about 0s.09 early relatively to the mean of stars 111 and 113. Inspection of the residuals of eleven other parallax sets observed on this date did not reveal any unusual disturbance. 33. Observed through clouds. Images breaking frequently. Reject? 40. Daylight illumination. 41. Telescope failed to work with fine motion in zenith distance. Telescope clamped on stars 111 and 112 but unclamped on star 113.

Assumed $D\alpha$ 1895.0 $= +71^s.430$ $\quad d.D\alpha = +0^s.001$ $\quad p_z = 59.94$

$x = +0.009$ $\quad d.D\mu = +0.018$ $\quad [pnn.3] = 0.2258$

$y = +0.183$ $\quad [pvv] = 0.2272$

$z = +0.260$ $\quad \pi = +0''.12 \pm 0''.032$ $\quad r = \pm 0^s.026$

Stars 111 and 112. $d.\Delta\mu = +0^s.008$, $\pi = +0''.12 \pm 0''.034$, $r_1 = \pm 0''.13$; 40 obs.

9 URSAE MAJORIS.

	+ 34s									
1	+ 965	−1.15	+1.00	$+0^s.05$	+ 4	1.4	+ 3	13	13	4
2	907	1.15	1.00	+ .63	+ 62	1.5	+46	13	13	5
3	1060	1.15	1.00	− .90	− 91	1.3	−59	13	13	3.5
4	941	1.13	1.00	+ .29	+ 28	0.9	+13	11	14	2
5	951	1.12	0.99	+0.19	+ 19	1.3	+12	13	13	4
6	1111	1.07	.92	−1.41	−141	0.7	−49	16	11	0
7	979	1.05	.85	−0.09	− 11	1.5	− 8	25	25	2.5
8	933	1.03	.78	+ .37	+ 35	1.7	+30	24	27	3.5
9	1035	1.00	.00	− .65	− 70	1.0	−35	27	27	4
10	+ 973	−0.98	+0.52	−0.03	− 9	1.8	− 8	16	23	5
							− 6			
11	+ 916	−0.75	−0.80	+0.54	+ 27	2.0	+27	25	25	5 5
12	931	0.74	0.84	+0.39	+ 11	2.0	+11	25	25	5 5
13	+1020	−0.73	−0.86	−0.50	− 78	1.8	−70	25	25	4 4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
14	'94, Apr. 12.3	— 0.04	— 0.04	+2052	— 3	+ 4	+ 5	0	+12	—150
15	23	0.04	21.55	44	2	2067	6		3	143
16	24	— 0.04	— 0.04	+2021	— 2	+ 4	+ 9	0	+ 3	—142
17	94 Nov. 24.7	— 0.09	— 0.09	+2028	— 5	+ 9	—24	+1	+30	— 20
18	26	.09	0.09	2021	5	9	22	0	32	19
19	Dec. 2	.09	0.09	1995	5	9	60	1	37	16
20	3	.01	3.61	1568	1	346	53	0	38	15
21	4	.01	18.25	267	0	1750	48	1	39	15
22	5	.01	0.01	2004	1	1	47	0	40	14
23	14.7	.01	0.01	2138	— 1	1	45	1	48	9
24	18.6	— 0.01	— 0.01	+1932	0	+ 1	—46	+1	+51	— 7
25	95 Apr. 4.4	— 0.02	— 0.02	+1881	— 1	+ 2	+14	0	+58	+ 54
26	9.3	.02	1.62	1654	1	155	23	0	55	57
27	13	.02	0.02	1775	1	2	27	0	52	59
28	14	.02	0.02	1827	1	2	27	+1	52	60
29	17	— 0.08	— 0.08	+1856	— 5	+ 8	+27	0	+50	+ 62
30	95 Nov. 10.7	+ 1.63	+ 1.63	+1772	+ 95	— 156	+54	+1	+57	+175
31	11	— 0.12	—12.93	524	— 7	+1240	52	1	58	179
32	23	0.12	0.12	1697	7	12	53	1	68	179
33	Dec. 2	2.35	2.52	1622	137	242	54	1	76	187
34	5	12.09	0.12	2392	705	12	58	1	79	193
35	13	— 0.12	— 0.12	+1482	— 7	+ 12	+58	+1	+86	+198
	36. Rejected Observation.									
36	95 Dec. 4.7	— 3.20	—15.86	— 102	—187	+1521	+54	+1	+78	+193

1. Daylight illumination on stars 114 and 116; lamp illumination on star 115, est'd mag. 8.0. 3. Star 115, est'd mag., 8.0. 6, 9. Star 115, fff. 23. Observed through light clouds. 35. All three stars ff. 36. Est'd mags., 8.8, 7.8, 9.0, screen I on star 115; star 114, fff; star 116 extremely faint. Sky hazy and bright moon.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.40	8.00	8.00	3
5th	7.30	8.12	8.00	4

Normal Equations.

$+95.61\,x - 20.96\,y + 13.20\,z - 4.55 = 0$

$-20.96\,x + 44.72\,y + 2.63\,z - 9.94 = 0$

$+13.20\,x + 2.63\,y + 77.30\,z - 17.23 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
14	+ 920	−0.72	−0.90	+0.50	+ 21	2.0	+21	25	25	5	5
15	975	0.69	0.97	−0.05	− 35	1.8	−32	25	13	5	4.5
16	+ 893	−0.69	−0.97	+0.77	+ 47	2.0	+47	25	25	5	5
							+ 1				
17	+1019	−0.10	+0.97	−0.49	− 24	1.9	− 23	25	25	4.5	4
18	1016	.09	.96	− .46	− 22	1.8	− 20	25	25	3.5	3.5
19	961	.08	.93	+ .09	+ 33	1.5	+ 25	25	24	3	2.5
20	883	.08	.92	+ .87	+111	1.3	+ 72	25	23	3	2
21	994	.07	.91	− .24	− 1	2.0	− 1	25	15	4.5	4.5
22	983	.07	.91	−0.13	+ 10	2.0	+ 10	25	25	4	5
23	1133	.04	.83	−1.63	−140	1.5	−105	25	25	3	3
24	+ 932	−0.03	+0.79	+0.38	+ 60	1.7	+ 51	25	25	4	3.5
							+ 1				
25	+1008	+0.26	−0.83	−0.38	− 42	2.0	−42	25	25	4.5	4.5
26	943	.27	.87	+ .27	+ 23	1.7	+20	25	24	4	3
27	914	.28	.91	+ .56	+ 52	1.8	+47	25	25	4.5	3.5
28	968	.29	.91	+ .02	− 2	2.0	− 2	25	25	4.5	5
29	+ 998	+0.30	−0.93	−0.28	− 33	2.0	−33	25	25	5	5
							− 2				
30	+ 998	+0.86	+1.00	−0.28	+ 20	1.4	+14	21	21	3	2.5
31	1047	.86	1.00	− .77	− 29	1.8	−26	25	18	4.5	4.5
32	1003	.90	0.98	− .33	+ 16	1.7	+14	25	25	4	3
33	1045	.92	.93	− .75	− 26	0.8	−10	18	16	2.5	0
34	1030	.93	.91	−0.60	− 12	1.9	−11	19	27	4.5	4.5
35	+ 830	+0.95	+0.84	+1.40	+187	0.7	+65	25	25	3	0.5
							+ 8				
				36. Rejected Observation.							
36	+ 558	+0.93	+0.91	+4.12	+460			19	14	3.5	3

Assumed $D\alpha$ 1895.0 = +34.970 $d.D\alpha$ = +0.007 p_z = 74.72

x = + 0.074 $d.D\mu$ = +0.024 $[pnn.3]$ = 0.2056

y = + 0.245 $[pvv]$ = 0.2052

z = + 0.202 π = +0".10 ±0".030 r = ±0s.027

Stars 114 and 115. $d.\Delta\mu$ = +0s.009, π = +0".16 ±0".033, r_1 = ±0".14; 35 obs.

TABLE VII (Continued).

STARS 117, 118, 119.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	− 31s						
1	'95, Apr. 9.4	− 0.02	− 1.70	− 215	0	− 11	0	0	+ 1	
2	13.3	0.02	0.02	270	0	0	− 1		2	
3	14	0.02	1.95	189	0	12	1		2	
4	17	− 5.60	− 0.08	− 319	+ 31	− 1	− 1	0	+ 2	
5	95 Nov. 10.8	−29.17	−31.04	− 222	+160	−196	− 1	−1	− 6	
6	23	21.32	5.52	397	118	35	1	1	7	
7	Dec. 5.7	14.64	0.12	271	80	− 1	1	1	7	
8	13	−10.97	− 0.05	− 400	+ 60	0	− 2	−1	− 7	
9	96 Apr. 9.3	− 0.12	− 0.12	− 126	+ 1	− 1	− 1	−1	− 2	
10	15	0.12	0.80	241	1	5	2	0	2	
11	21	0.12	0.12	277	0	1	2	1	2	
12	22	5.11	16.72	334	28	105	2	0	2	
13	24	0.12	0.12	164	1	1	1	−1	2	
14	25	− 0.12	− 2.23	− 154	+ 1	− 14	− 2	0	− 2	

5. Star 119, ff; almost daylight illumination. 8. Stars 117 and 118, ff; 119, fff. 10. Star 119, fff; est'd mags., 8.7, 8.1, 9.0. 12. Observed through hazy clouds. All three stars, fff; threads obscure on account of low illumination. 14. Star 119, fff; est'd mags., 8.8, 8.1, 9.0.

Epoch.	Estimated Magnitudes.			No. of Ests.
1st	8.18	8.05	8.50	4
2d	8.25	7.95	8.45	2
3d	8.30	8.03	8.63	3

Normal Equations.

$+31.62\,x + 25.97\,y - 17.45\,z - 9.94 = 0$

$+25.97\,x + 28.01\,y - 13.57\,z - 11.24 = 0$

$-17.45\,x - 13.57\,y + 26.15\,z + 8.31 = 0$

STARS 120, 121, 122.

		s	s	+ 101s						
1	'94, Dec. 18.7	− 0.01	− 0.01	+ 731	0	0	0	+2	+ 8	− 3
2	31.6	+ 1.18	+ 2.37	845	− 7	+ 14	0	1	7	0
3	95 Jan. 1	+ 1.92	− 0.03	+ 763	−11	0	0	+2	+ 7	+ 1

TABLE VII (Continued).

LALANDE 19022.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	n_1'	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	— 31^s			^{s}							
1	— 225	+0.27	—0.85	—0.35	— 25	1.7	—22	25	24	3.5	2.5
2	269	.28	.88	+ .09	+ 21	1.8	+19	25	25	4.5	3.5
3	200	.29	.89	— .60	— 48	1.7	—41	25	22	4	4
4	— 288	+0.30	—0.91	+0.28	+ 41	1.9	+39	22	25	5	5
							— 1				
5	— 266	+0.86	+1.00	+0.06	+ 10	0.9	+ 4	9	8	2.5	1.5
6	323	.90	0.98	+ .63	+ 68	1.0	+34	13	18	2.5	0.5
7	201	.93	0.92	— .59	— 51	1.8	—46	17	25	4.5	4.5
8	— 350	+0.95	+0.86	+0.90	+100	1.0	+50	19	23	2.5	0.5
							+10				
9	— 130	+1.27	—0.86	—1.30	— 71	1.8	—64	25	25	4.5	4.5
10	249	1.29	.90	—0.11	+ 49	1.3	+32	25	24	3.5	2.5
11	283	1.31	.94	+0.23	+ 85	1.6	+68	25	25	2.5	2.5
12	415	1.31	.95	+1.55	+217	0.5	+54	17	15	4.5	4.5
13	168	1.31	.96	—0.92	— 29	1.8	—26	25	25	4	4
14	— 171	+1.32	—0.96	—0.89	— 25	1.4	—18	25	22	5	5
							+ 8				

Assumed $D\alpha$ 1895.0 = —31^s.260 $\quad d.D\alpha = -0^s.019$ $\quad p_z = 16.44$

$x = -0.190$ $\quad d.D\mu = +0.048$ $\quad [pnn.3] = 0.0945$

$y = +0.483$ $\quad [pvv] = 0.0940$

$z = -0.193$ $\quad \pi = \mathbf{-0''.11 \pm 0''.089}$ $\quad r = \pm 0^s.031$

20 LEONIS MINORIS.

	+ 101^s			^{s}							
1	+ 738	—0.03	+0.86	+0.72	+ 57	1.7	+48	25	25	3.5	3
2	860	0.00	0.72	—0.50	— 65	1.4	—46	24	23	2	2
3	+ 762	+0.01	+0.71	+0.48	+ 33	1.8	+30	22	19	5	5
							+11				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
4	'95, Apr. 9.4	—0.02	— 0.02	+ 774	0	0	0	+1	— 9	+ 24
5	13	.02	.02	837				1	9	24
6	14.3	.02	.02	822				1	10	25
7	17	—0.08	— 0.08	+ 725	0	0	0	+1	—10	+ 25
8	95 Nov. 17.8	—0.12	— 0.12	+ 759	+ 1	— 1	0	+3	+16	+ 76
9	23.7	1.12	2.49	748	6	14		3	16	77
10	Dec. 5	0.12	10.97	754	1	64		3	16	80
11	15	—0.12	— 3.72	+ 797	+ 1	—22	0	+3	+15	+ 82
12	96 Apr. 21.3	—0.12	— 0.12	+ 729	+ 1	— 1	0	+2	— 4	+112
13	22	.12	.12	693	1	1		2	4	113
14	24	.12	.12	674	1	1		2	4	113
15	25	0.12	.12	709	0	0		2	4	114
16	May 2	—7.34	— 0.12	+ 668	+43	— 1	0	+2	— 5	+115

Epoch.	Estimated Magnitudes.			No. of Ests.
3d	6.8†	8.90	8.18	4
4th	6.7	8.0	8.2	1

Normal Equations.

$+48.13\,x + 34.74\,y - 12.72\,z + 1.17 = 0$

$+34.74\,x + 33.32\,y - 16.52\,z - 2.14 = 0$

$-12.72\,x - 16.52\,y + 48.06\,z - 0.72 = 0$

† Only one estimate on star 120.

STARS 123, 124, 125.

				−88s						
		s	s							
1	'93, Nov. 16.8	+ 0.01	+ 0.01	—1715	0	+ 1	— 2	0	+ 8	—314
2	Dec. 3.7	+ 0.18	— 0.04	1787	— 1	— 3	—17	—1	0	301
3	12	—10.89	5.56	1871	+ 493	355	+26	0	— 4	294
4	19	5.11	5.11	1499	231	326	28	1	8	289
5	94 Jan. 1.6	0.05	0.05	1718	2	3	10	0	12	279
6	7	25.30	5.58	2457	1146	356	21	—1	13	274
7	12	—27.42	— 5.58	—2709	+1242	— 356	+18	0	—14	—270

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
4	+ 790	+0.27	−0.81	+0.20	+ 1	1.8	+ 1	25	25	4	4
5	853	.28	.85	− .43	− 62	1.8	−64	25	25	4.5	3.5
6	838	.29	.86	− .28	− 46	1.8	−41	25	25	3.5	3.5
7	+ 741	+0.30	−0.88	+0.69	+ 51	2.0	+51	25	25	5	5
							−13				
8	+ 854	+0.86	+0.99	−0.44	− 34	2.0	−34	25	25	5	5
9	836	.88	1.00	− .26	− 15	0.5	− 4	16	5	1	0
10	790	.93	0.95	+ .20	+ 30	1.8	+27	25	19	4.5	4.5
11	+ 876	+0.96	+0.88	−0.66	− 55	1.3	−36	25	23	4	3
							−12				
12	+ 839	+1.31	−0.91	−0.29	− 21	1.7	−18	25	25	3	3
13	804	1.31	.92	+ .06	+ 14	2.0	+14	25	25	4.5	4.5
14	785	1.31	.93	+ .25	+ 33	2.0	+33	25	25	4.5	4.5
15	821	1.32	.94	− .11	− 2	2.0	− 2	25	25	4.5	4.5
16	+ 822	+1.34	−0.97	−0.12	− 4	1.5	− 3	21	25	5	5
							+ 5				

2. Images breaking at times; star 122, f. 9. Star 122, fff; reject? 11. Star 122, fff; est'd mags., 7.5, 8.5, 9.0. 13. Observed through hazy clouds. 16. Star 122, fff; daylight illumination.

Assumed $D\alpha$ 1895.0 $= +^{s}101.810$ $d.D\alpha = -^{s}0.020$ $p_z = 30.63$

$x = -\ 0.196$ $d.D\mu = +0.026$ $[pnn.3] = 0.0699$

$y = +\ 0.063$ $[pvv] = 0.0740$

$z = +\ 0.068$ $\pi = +0''.05 \pm 0''.080$ $r = \pm 0^{s}.025$

A.-OE. 10603.

	−89s			s						
1	−1022	−1.12	+1.00	−0.28	+ 56	1.4	+39	13	13	4.5
2	1110	1.07	0.97	+0.60	+141	0.7	+49	18	25	0.5
3	1005	1.05	.93	−0.45	+ 34	1.4	+24	19	22	2.5
4	864	1.03	.87	−1.86	−109	0.8	−44	24	24	1.5
5	1000	1.00	.73	−0.50	+ 22	1.5	+16	21	21	3.5
6	934	0.98	.66	−1.16	− 46	1.5	−34	11	22	5
7	−1089	−0.96	+0.59	+0.39	+106	0.8	+42	10	22	2
							+13			

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
8	'94, Apr. 5.4	— 5.56	— 5.56	—1688	+252	— 355	— 2	0	— 2	—207
9	7	7.26	7.26	1654	329	463	3	—1	— 2	205
10	12	3.64	3.64	1690	165	232	3	0	+ 1	201
11	24.3	7.26	7.26	1687	329	463	6	1	6	192
12	25	5.56	5.56	1783	252	355	7	0	7	191
13	26	5.56	5.56	1783	252	355	9	—1	7	190
14	May 2	— 5.56	— 5.56	—1753	+252	— 355	— 6	0	+10	—185
15	94 Nov. 16.8	— 5.09	— 6.17	—1825	+231	— 394	+15	—1	—19	— 34
16	24.7	5.61	5.68	1908	254	362	13	2	23	28
17	26	5.61	5.61	1855	254	358	16	1	24	26
18	Dec. 2	5.61	5.61	1823	254	358	33	2	27	22
19	3	3.61	3.61	1974	164	230	31	1	27	21
20	4	1.78	1.78	1959	81	114	28	2	28	20
21	14	5.53	5.53	1981	251	353	26	1	33	12
22	18	5.53	5.53	1834	251	353	27	2	34	— 8
23	31.6	5.53	5.53	1786	251	353	28	1	38	+ 1
24	95 Jan. 1	— 3.61	— 3.61	—1905	+164	— 230	+29	—2	—38	+ 2
25	95 Apr. 9.4	— 5.54	— 5.54	—2053	+251	— 353	—14	—1	—27	+ 76
26	13	5.54	5.54	1985	251	353	15	1	25	80
27	14	3.62	3.62	2116	164	231	15	—1	25	81
28	17.3	— 5.60	— 5.60	—1969	+254	— 357	—16	0	—24	+ 83
29	95 Nov. 17.8	— 5.64	— 5.64	—2104	+255	— 360	—26	—2	—46	+246
30	23.7	14.94	+ 1.05	3010	677	+ 67	31	3	48	251
31	Dec. 5	5.64	— 5.64	2039	255	— 360	34	2	54	260
32	13	5.64	5.64	2244	255	360	34	3	57	267
33	15	—14.64	5.64	2558	+663	360	33	2	58	268
34	25	+18.12	—19.95	— 98	—821	—1273	—29	—3	—62	+276

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
8	—1002	—0.73	—0.73	—0.48	— 23	1.9	—22	22	22	5	5
9	999	.73	.75	— .51	— 26	1.7	—22	21	21	4	4
10	960	.72	.81	— .90	— 67	2.0	—67	23	23	5	5
11	1014	.69	.91	— .36	— 16	1.9	—15	21	21	5	5
12	1077	.68	.92	+ .27	+ 45	1.7	+38	22	22	5	4
13	1079	.68	.93	+ .29	+ 47	1.9	+45	22	22	5	5
14	—1037	—0.66	—0.96	—0.13	+ 4	1.9	+ 4	22	22	5	5
							— 6				
15	—1027	—0.12	+1.00	—0.23	+ 26	0.8	+ 9	21	20	2	1
16	1056	.10	1.00	+ .06	+ 54	1.5	+ 40	22	21	2.5	2.5
17	994	.09	0.99	—0.56	— 8	1.6	— 6	22	22	3	3
18	945	.08	.98	—1.05	— 58	1.3	— 38	22	22	3	3
19	1058	.08	.97	+0.08	+ 55	1.3	+ 36	23	23	3	2
20	1014	.07	.97	— .36	+ 10	1.8	+ 9	24	24	4	4
21	1103	.04	.91	+ .53	+ 96	1.4	+ 67	22	22	3	3
22	953	— .03	.88	—0.97	— 54	1.7	— 46	22	22	4	4
23	898	.00	.75	—1.52	—114	1.9	—108	22	22	4.5	4.5
24	— 980	+0.01	+0.74	—0.70	— 32	2.0	— 32	23	23	5	5
							— 7				
25	—1121	+0.27	—0.78	+0.71	+ 61	1.8	+55	22	22	4.5	4.5
26	1048	.28	.82	— .02	— 14	1.8	—13	22	22	4.5	4.5
27	1143	.29	.83	+ .93	+ 81	1.8	+73	23	23	4	4
28	—1029	+0.30	—0.86	—0.21	— 34	1.8	—31	22	22	4.5	4.5
							+21				
29	—1037	+0.88	+1.00	—0.13	+ 2	1.9	+ 2	22	22	5	5
30	1097	.90	1.00	+0.47	+ 61	0.7	+21	9	16	1	0
31	974	.93	0.97	—0.76	— 64	1.5	—48	22	22	3	3
32	1176	.95	.92	+1.26	+136	1.2	+82	22	22	3	1.5
33	1080	.96	.91	+0.30	+ 39	1.4	+27	17	22	3.5	2.5
34	—1010	+0.98	+0.82	—0.40	— 32	0.9	—14	15	14	4	3
							+12				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
35	'96, Apr. 14.4	− 5.64	− 5.64	−2139	+255	−360	− 43	−2	− 49	+361
36	21.3	−18.36	5.64	2818	+832	360	44	2	46	366
37	22	+ 5.40	− 0.12	2166	−245	− 8	44	2	46	367
38	24	+ 4.84	+ 5.85	2495	−219	+373	44	2	45	369
39	25	− 5.64	− 5.64	2354	+255	−360	42	2	45	370
40	May 2	− 5.64	− 5.64	−2301	+255	−360	− 42	−1	− 42	+375

2. Images very diffuse and unsteady. 4. Telescope clamped. Images unsteady and bad.
5. Star 123, f; clouds. 7. Images diffuse. 6. Observation of star 123 delayed by failure of chronograph. 14. Daylight illumination. 15. Images breaking frequently.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	7.80	6.90	7.90	2
6th	7.77	6.63	7.63	3

Normal Equations.

$$+100.33\,x + 8.36\,y - 7.40\,z - 14.29 = 0$$
$$+ 8.36\,x + 63.70\,y - 10.38\,z + 23.05 = 0$$
$$- 7.40\,x - 10.38\,y + 77.82\,z - 22.29 = 0$$

STARS 126, 127, 128.

				+ 16s						
		s	s							
1	'93, Dec. 3.7	− 0.04	− 0.04	+ 811	0	0	+12	+1	+ 2	− 95
2	94 Jan. 1	.06	− .06	838	0	+ 1	− 7	1	9	88
3	7	.06	+ .02	777	0	0	15	1	10	86
4	26.6	0.06	− 0.06	807	0	1	15	1	14	82
5	Feb. 4	12.82	3.65	687	+ 3	+38	10	1	16	79
6	5	0.01	0.01	695	0	0	7	1	16	79
7	7	− 0.01	− 0.01	+ 802	0	0	− 6	+1	+16	− 78
8	94 Apr. 22.4	− 5.56	− 5.56	+ 622	+ 1	+58	+ 3	+1	+12	− 61
9	25	0.04	0.04	700	0	0	5	1	11	60
10	May 2.3	.04	.04	679	0	0	4	1	10	58
11	4	.04	.04	675	0	0	3	1	9	58
12	6	0.04	0.04	592	0	0	2	1	9	58
13	12	− 5.56	− 5.56	+ 566	+ 1	+58	+ 2	+1	+ 8	− 56

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
35	— 977	+1.29	—0.83	—0.73	—120	1.8	—108	22	22	4.5	4.5
36	1072	1.31	.89	+ .22	— 27	1.4	— 19	15	22	4	3
37	1144	1.31	.90	+ .94	+ 45	1.9	+ 43	22	25	4.5	4.5
38	1063	1.31	.92	+0.13	— 37	1.6	— 30	20	21	4.5	5
39	1178	1.32	.93	+1.28	+ 77	1.7	+ 65	22	22	4.5	4
40	—1116	+1.34	—0.96	+0.66	+ 14	1.9	+ 13 — 6	22	22	4.5	5

18. Images breaking at times. 21. Star 123, f; star 125, ff; light clouds. 33. Est'd mags.: 8.5, 8.0, 8.5. Sky hazy. 30. Star 123, fff; star 125, ff. Images diffuse. Clouds. 32. Images breaking frequently. 37. Est'd mags.: 8.7, 7.6, 8.2. Hazy clouds. 39. Est'd mags.: 8.0, 7.6, 8.3. Hazy clouds. 40. Est'd mags.: 8.0, 7.3, 7.7. Daylight illumination.

Assumed $D\alpha$ 1895.0 $= -90^s.050$ $d.D\alpha = +0^s.019$ $p_z = 75.76$

$x = + 0.190$ $d.D\mu = -0.034$ $[pnn.3] = 0.3278$

$y = - 0.345$ $[pvv] = 0.3264$

$z = + 0.258$ $\pi = +0''.13 \pm 0''.038$ $r = \pm 0^s.032$

LALANDE 21185.

	+ 16s			s							
1	+ 731	—1.07	+1.00	—0.51	— 1	1.6	— 1	25	25	2.5	
2	754	0.99	0.87	— .74	— 32	1.7	—27	25	25	3.5	
3	687	.98	.82	— .07	+ 31	1.7	+26	25	24	3.5	
4	726	.93	.59	— .46	— 22	1.7	—19	25	25	2	3
5	656	.90	.45	+ .24	+ 40	1.3	+26	18	11	4	3.5
6	626	.90	.44	+ .54	+ 70	1.7	+60	25	25	4	3.5
7	+ 735	—0.89	+0.41	—0.55	— 41	2.0	—41 + 3	25	25	5	5
8	+ 636	—0.69	—0.77	+0.44	— 12	1.7	—10	22	22	4	4
9	657	.68	.80	+ .23	— 35	1.9	—33	25	25	5	4
10	636	.66	.87	+ .44	— 19	2.0	—19	25	25	4.5	4.5
11	630	.66	.87	+0.50	— 13	2.0	—13	25	25	5	5
12	546	.65	.89	+1.34	+ 70	1.4	+49	25	25	3	2
13	+ 580	—0.64	—0.93	+1.00	+ 34	1.8	+30 + 1	22	22	5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
14	'94, Nov. 26.8	+ 0.92	+ 3.57	+ 767	0	—37	—10	+2	+ 9	— 8
15	Dec. 14.7	— 0.54	— 0.97	660		+10	18	3	13	4
16	18	.01	.01	718		0	18	2	14	— 3
17	95 Jan. 1	— .01	— .01	721		0	20	3	17	0
18	10.6	+ 0.11	+ 0.11	+ 683	0	— 1	—23	+2	+19	+ 3

4. Star 128, f. 5. Star 128 must have been extremely faint; the eleven threads observed were distributed irregularly between B_1 and G_3. Sky thick. 10. F and G groups of threads obscure on account of low illumination. 12. Star 128, f. 13. Star 128, f; daylight illumination. 15. Star 128, fff. Clouds and bright moon. 17. Star 128, est'd mag., 8.3.

Normal Equations.

$$+54.69\,x - 32.13\,y + 9.78\,z + 2.67 = 0$$
$$-32.13\,x + 26.60\,y - 1.57\,z - 2.45 = 0$$
$$+ 9.78\,x - 1.57\,y + 36.33\,z - 18.05 = 0$$

STARS 129, 130, 131.

		s	s	— 56s						
1	'93, Dec. 12.7	—11.80	—13.36	— 335	+234	— 91	—19	0	+ 4	—848
2	19	5.58	5.58	324	110	38	20	0	6	833
3	94 Jan. 12.6	8.76	8.76	155	173	60	13	0	14	780
4	27	15.98	16.84	644	316	115	18	—1	19	747
5	31	0.01	0.01	263	0	0	17	0	20	737
6	Feb. 1	10.55	10.55	425	209	72	20	0	20	735
7	15	—13.40	— 9.34	— 412	+265	— 64	—18	—1	+24	—704
8	94 Apr. 24.4	—12.85	—12.85	— 899	+254	— 87	+ 4	0	+26	—554
9	26	9.04	9.04	766	179	61	7	0	26	549
10	May 3.3	4.46	4.46	657	88	30	4	0	25	533
11	8	3.64	3.64	714	72	25	3	—1	24	522
12	10	1.72	0.04	560	34	0	3	0	23	518
13	11	—12.85	—12.85	— 800	+254	— 87	+ 3	0	+23	—515

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
14	+ 723	—0.09	+0.99	—0.43	— 12	1.8	—11	24	21	3.5	4
15	664	.04	.98	+ .16	+ 46	1.2	+28	23	19	3	3
16	713	— .03	.97	— .33	— 4	1.7	— 3	25	25	3.5	3.5
17	721	+ .01	.88	— .41	— 18	2.0	—18	25	25	4.5	4.5
18	+ 683	+0.03	+0.79	—0.03	+ 14	1.9	+13	19	25	4.5	4.5
							+ 2				

Assumed $D\alpha$ 1895.0 = $+16^s.680$ $d.D\alpha = -0^s.026$ $p_z = 32.32$

$x = -0.259$ $d.D\mu = -0.019$ $[pmn.3] = 0.0563$

$y = -0.188$ $[pvv] = 0.0572$

$z = +0.558$ $\pi = +0''.36 \pm 0''.047$ $r = \pm 0^s.021$

	Stars 126 and 127.	Stars 127 and 128.
$d.\Delta\mu$	$-0^s.014$	$-0^s.006$
π	$+0''.46 \pm 0''.052$	$+0''.28 \pm 0''.092$
r_1	$\pm 0''.14$	$\pm 0''.25$
No. of Obs.	18	18

LALANDE 21258.

	-56^s										
				^{s}							
1	—1055	—1.05	+0.99	—0.15	+ 41	0.9	+18	16	17	0.5	
2	1099	1.03	.97	+0.29	+ 84	1.5	+63	22	22	3.5	
3	821	0.96	.77	—2.49	—214	0.6	—64	20	9	1.5	
4	1190	.92	.57	+1.20	+141	0.6	+42	11	12	0	0.5
5	997	.91	.52	—0.73	— 56	1.6	—45	25	25	2.5	2.5
6	1023	.91	.50	—0.47	— 31	1.2	—19	19	19	3	1.5
7	— 910	—0.87	+0.28	—1.60	—160	0.8	—64	17	19	1	0.5
							—10				
8	—1256	—0.69	—0.78	+1.86	+110	1.7	+94	18	18	4.5	4.5
9	1164	.68	.80	+0.94	+ 16	1.6	+13	20	20	5	4
10	1103	.66	.86	+ .33	— 50	1.5	—38	21	21	3.5	2.5
11	1163	.65	.90	+ .93	+ 7	1.8	+ 6	23	23	4.5	4.5
12	1018	.64	.91	— .52	—139	0.8	—56	18	19	3.5	2
13	—1122	—0.64	—0.92	+0.52	— 36	1.5	—27	18	18	4	3.5
							— 1				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
14	'94, Dec. 3.7	— 4.54	— 4.54	— 953	+ 90	— 31	—22	—1	+ 2	— 61
15	4	7.23	7.23	1112	143	49	20	1	3	59
16	5	14.42	14.42	1213	286	98	20	1	3	— 56
17	31	12.82	12.82	1424	254	87	20	1	12	+ 1
18	95 Jan. 8	—12.70	—12.70	—1113	+251	— 86	—29	—1	+14	+ 19

1. Image of star 131 very poor. 3. Images very diffuse; star 130, ff. 4. Images breaking frequently; star 130, ff, and invisible much of the time. 5, 11. Star 130, f. 7. Images breaking frequently. 9, 10, 13, 14, 15, 16. Star 130, ff. 12. Star 129, f; star 130, ff; images diffuse. 17. Images diffuse; star 130, f; star 131 bright enough to have been observed through screen I. A comparison of the differences between the stars, with respect to their transits on the individual threads, shows that the apparent relative displacement between observations 17 and 18, falls almost entirely upon star 130.

Normal Equations.

$$+31.08\,x - 17.60\,y + 2.29\,z + 11.41 = 0$$
$$-17.60\,x + 13.80\,y + 1.89\,z - 5.17 = 0$$
$$+2.29\,x + 1.89\,y + 22.52\,z - 9.45 = 0$$

STARS 132, 133, 134.

				$-92s$						
		s	s							
1	'94, Jan. 1.7	—13.33	—13.33	—1945	—4930	+5339	— 9	0	+ 32	—209
2	7	0.01	0.01	1259	4	4	22	—1	37	206
3	26.6	— 0.01	— 0.01	1277	— 4	+ 4	23	0	55	194
4	Feb. 5	+ 0.04	+ 0.04	—1687	+ 15	— 16	— 9	—1	+ 65	—189
5	94 Apr. 22.4	+ 0.01	+ 0.01	—1655	+ 4	— 4	+ 4	0	+110	—145
6	25	.01	.01	1852	4	4	7	—1	110	144
7	May 2	.01	.01	1725	4	4	5	0	109	139
8	4.3	+ 0.01	+ 0.01	1659	+ 4	— 4	3	1	108	138
9	10	—12.05	—12.05	—2190	—4456	+4826	+ 3	—1	+107	—135

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1 m_2	Images.
				s					
14	— 976	—0.08	+1.00	—0.94	—116	1.3	— 75	21 21	3 2
15	1095	.07	1.00	+0.25	+ 2	1.7	+ 2	21 21	4 4
16	1099	— .07	1.00	+0.29	+ 5	1.0	+ 2	16 16	3 3
17	1265	.00	0.89	+1.95	+159	1.5	+119	18 18	3.5 3.5
18	— 945	+0.02	+0.82	—1.25	—167	1.0	— 84	18 18	2.5 1.5
							— 7		

Assumed $D\alpha$ 1895.0 = —57^s.070 $d.D\alpha$ = —0^s.087 p_z = 19.70

x = — 0.872 $d.D\mu$ = —0.082 [pnn.3] = 0.2301

y = — 0.815 [pvv] = 0.2312

z = + 0.577 π = +0″.34±0″.110 r = ±0^s.042

Observations 2, 8, and 17, are the only ones on this set of stars for which the state of the images was good or fair and for which also no adverse notes were made. If these are omitted, the remaining observations, though inferior in quality, are probably more homogeneous. The results of their solution are:—

$d.D\alpha$ = —0^s.042, $d.D\mu$ = —0^s.066, π = +0″.40 ± 0″.081, r_1 = ±0^s.026; 15 obs.

FED. 1831, *prec.*

	— 93^s			s †					
1	— 722	—0.99	+0.89	+0.03	+169	1.1	+ 93	12 12	3.5
2	451	.98	.84	— .24	—107	1.5	— 80	13 13	5
3	439	.93	.62	— .25	—149	1.2	— 89	13 13	2.5 3
4	— 822	—0.90	+0.47	+0.13	+214	1.2	+128	13 13	4 3
							+ 13		
5	— 686	—0.69	—0.73	0.00	— 73	1.3	—47	13 13	4 4
6	880	.68	.77	+ .19	+115	1.5	+86	13 13	5 5
7	750	.66	.84	+ .06	— 25	1.5	—19	13 13	4.5 4.5
8	687	.66	.85	.00	— 90	1.5	—68	13 13	5 5
9	— 846	—0.64	—0.90	+0.16	+ 62	1.2	+37	13 13	3.5 2
							— 2		

† The absolute terms of the equation for stars 132, 133, 134 were not multiplied by 10 in the solution and therefore are of their true magnitude.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
10	'94, Dec. 2.8	—10.95	— 7.84	— 775	—4049	+3140	—38	—1	—28	— 16
11	18.7	— 7.38	—14.67	4591	—2731	+5875	30	2	19	— 7
12	95 Jan. 10.7	+ 0.41	+ 0.41	—1758	+ 152	— 164	—37	—1	— 2	+ 6

1. Stars 132 and 134, f. 3. Star 132, f. 4. Star 134, f; images diffuse. 9. Star 132, ff.
10. Stars very faint; light clouds.

Normal Equations.

$$+19.36\,x - 12.65\,y - 0.77\,z + 0.20 = 0$$
$$-12.65\,x + 10.17\,y + 1.00\,z + 0.15 = 0$$
$$-0.77\,x + 1.00\,y + 12.56\,z - 1.13 = 0$$

STARS 135, 136, 137.

				—70s						
		s	s							
1	'93, Dec. 12.7	— 5.33	—18.27	— 976	+466	—1392	—11	0	+ 4	—1055
2	19	0.01	4.97	2170	1	379	12	—1	6	1037
3	94 Jan. 12.6	3.42	15.07	1725	299	1148	8	0	13	970
4	27	— 9.69	12.05	2265	+847	918	10	0	18	928
5	31	+ 2.24	10.75	1598	—196	819	9	1	19	918
6	Feb. 1	0.29	6.81	2365	25	519	12	0	20	915
7	4	+ 1.52	4.16	2304	—133	317	6	—1	21	907
8	15	— 2.98	—10.52	—2448	+261	— 802	—10	0	+24	— 876
9	94 Apr. 24.4	— 1.52	—10.97	—2370	+133	— 836	+ 2	0	+36	— 690
10	26	4.28	0.01	3485	374	1	4	—1	36	684
11	May 3	— 0.25	7.05	2476	+ 22	537	2	0	35	665
12	8.3	+ 1.19	— 5.97	—2597	—104	— 455	+ 1	—1	+35	— 651
13	94 Dec. 3.8	— 1.67	—14.58	—2126	+146	—1111	—13	—1	— 8	— 75
14	4	+ 0.04	— 6.83	—2800	— 4	— 520	—12	—1	— 8	— 72

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	n_1' †	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
10	— 767	—0.08	+1.00	+0.08	+ 69	0.8	+28	14	12	1	0.5
11	505	—0.03	0.98	—0.18	—204	0.9	—46	7	11	4	4
12	— 804	+0.03	+0.81	+0.11	+ 69	1.3	+45	12	12	4.5	4.5
							+ 9				

Assumed $D\alpha$ 1895.0 $= -93^s.690$ $\quad d.D\alpha = -0^s.118$ $\quad p_z = 12.40$

$x = -0.118$ $\quad d.D\mu = -0.172$ $\quad [pnn.3] = 0.27$

$y = -0.172$ $\quad [pvv] = 0.24$

$z = +0.096$ $\quad \pi = +0''.21 \pm 0''.074$ $\quad r = \pm 0^s.058$

Stars 133 and 134. $d.\Delta\mu = -0^s.074$, $\pi = +0''.11 \pm 0''.086$, $r_1 = \pm 0''.16$; 18 obs.

A.-OE. 11677.

	— 72^s			^{s}							
1	— 964	—2.05	+1.00	—0.64	—570	0.7	—200	8	15	2	
2	1592	2.03	0.98	— .01	+ 56	1.3	+ 37	13	16	3.5	
3	1539	1.96	.81	— .06	— 20	0.8	— 8	8	12	0.5	
4	1256	1.92	.63	— .34	—328	0.7	—120	7	8	0.5	0.5
5	1522	1.91	.57	— .08	— 70	1.5	— 52	12	19	4.5	4
6	1816	1.91	.56	+ .22	+223	1.0	+112	12	15	3.5	1
7	1647	1.90	.52	+ .05	+ 48	1.3	+ 31	11	15	4	4
8	—1851	—1.87	+0.34	+0.25	+226	1.1	+124	9	13	4	3.5
							— 10				
9	—1725	—0.69	—0.74	+0.12	— 2	1.3	— 2	8	12	5	5
10	1757	.68	.77	+ .16	+ 26	0.9	+ 13	10	7	5	4
11	1619	.66	.83	+ .02	—120	1.3	— 78	12	16	4	3
12	—1772	—0.65	—0.87	+0.17	+ 28	1.5	+ 21	12	16	4.5	4.5
							— 12				
13	—1188	—0.08	+1.00	—0.41	—245	1.0	—122	10	17	3	2
14	—1417	—0.07	+1.00	—0.18	— 16	1.3	— 10	12	16	4	3

† The absolute terms of the equations for stars 132, 133, 134 and stars 135, 136, 137 are not multiplied by 10 in the solution and therefore are of their true magnitude.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
15	'94, Dec. 5.8	— 1.31	— 7.84	—2976	+ 115	— 597	—11	—1	— 7	— 70
16	31.7	+ 0.04	11.53	2620	— 4	879	12	1	— 2	+ 2
17	95 Jan. 16.6	—33.01	—33.01	—3823	+2885	—2515	— 4	—1	+ 3	+ 46

1, 3, 4, 9, 10, 11, 13, 14, 15, 17. Star 136, fff. 1. Frost on eye piece. 2. Star 136, diffuse and faint. 4. Star 137, fff. 5, 6, 7, 8, 12, 16. Star 136, ff. 6. Star 137, f. 7. Sky thick. 8. Light clouds in parts of the sky and bright moon. 9, 12, 15. Star 136, one thread rejected. 10. Observed through clouds.

Normal Equations.

$$+23.33\,x - 22.88\,y + 7.95\,z - 0.50 = 0$$
$$-22.88\,x + 38.38\,y - 8.72\,z - 0.19 = 0$$
$$+7.95\,x - 8.72\,y + 15.33\,z - 2.03 = 0$$

STARS 138, 139, 140.

				— 25s						
		s	s							
1	'93, Dec. 3.8	— 7.32	— 7.32	— 836	— 93	+ 69	+ 4	0	— 3	—110
2	19.7	1.74	1.74	900	22	16	— 7		4	105
3	94 Jan. 7	18.30	18.30	750	232	172	5		4	99
4	24.6	0.06	0.06	847	1	1	6		4	96
5	26	.06	0.06	805	1	1	6		4	96
6	27	.00	5.52	878	0	52	7		4	95
7	31	.01	5.53	912	0	52	6		4	94
8	Feb. 1	.01	0.01	883	0	0	7		4	94
9	5	.01	0.01	832	0	0	3		4	93
10	7	0.01	0.01	815	0	0	2		4	92
11	15	17.67	22.02	781	224	207	6		4	90
12	20	—12.89	—12.89	— 858	—164	+121	— 7	0	— 4	— 88
13	94 Apr. 22.4	— 3.48	— 3.48	— 861	— 44	+ 33	+ 1	0	+ 1	— 71
14	24	1.72	1.72	950	22	16	2		1	71
15	25	— 3.48	— 3.48	899	— 44	+ 33	2		1	70
16	26	+ 7.27	+ 7.27	— 964	+ 92	— 68	+ 3	0	+ 1	— 70

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ †	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
15	—1547	—0.07	+1.00	—0.05	+114	1.1	+63	12	16	2.5	2.5
16	1516	.00	0.92	— .08	+ 75	1.7	+64	13	20	4.5	4.5
17	—1414	+0.05	+0.77	—0.19	— 47	0.8	—19	7	7	4	2.5
							— 5				

Assumed $D\alpha$ 1895.0 = $-73^s.600$ $\quad d.D\alpha = +0^s.020$ $\quad p_z = 12.60$

$x = +0.020$ $\quad d.D\mu = +0.051$ $\quad [pnn.3] = 0.45$

$y = +0.051$ $\quad [pvv] = 0.47$

$z = +0.151$ $\quad \pi = +0''.49 \pm 0''.111$ $\quad r = \pm 0.059$

BRADLEY 1584.

	-25^s			^{s}							
1	— 969	—1.08	+0.99	—0.11	+ 35	1.1	+19	15	15	2	
2	1022	1.03	.99	+ .42	+ 85	1.1	+47	18	18	1.5	
3	918	0.98	.89	— .62	— 24	1.2	—14	15	15	2.5	
4	953	.93	.72	— .27	+ 4	1.1	+ 2	19	19	1	
5	911	.93	.69	— .69	— 39	1.3	—25	19	19	2.5	2
6	932	.92	.68	— .48	— 19	1.5	—14	19	22	4.5	3
7	964	.91	.63	— .16	+ 10	1.3	+ 6	19	22	3.5	2
8	988	.91	.62	+ .08	+ 34	0.8	+14	19	19	2	0
9	932	.90	.56	— .48	— 23	1.0	—12	19	19	0.5	0.5
10	913	.89	.53	— .67	— 44	1.0	—22	19	19	1	1
11	898	.87	.41	— .82	— 63	0.8	—25	9	11	3.5	2
12	—1000	—0.86	+0.33	+0.20	+ 36	1.3	+23	18	18	2.5	2.5
							0				
13	— 941	—0.69	—0.66	—0.39	— 57	1.3	—37	17	17	2.5	2.5
14	1024	.69	.68	+ .44	+ 25	1.3	+16	18	18	2	2.5
15	977	.68	.69	— .03	— 22	1.1	—12	17	17	1	2
16	—1006	—0.68	—0.71	+0.26	+ 6	1.3	+ 4	15	15	4.5	3

† The absolute terms of the equations for stars 135, 136, 137 are not multiplied by 10 in the solution and therefore are of their true magnitude.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*		*	*
17	'94, May 3.4	− 3.48	− 3.48	− 964	− 44	+ 33	+ 1	0	+ 2	− 68
18	4	7.32	7.32	909	93	69	1		2	68
19	6	0.00	0.00	835	0	0	1		2	67
20	8.3	0.04	0.04	960	1	0	1		3	66
21	10	12.72	18.28	818	162	172	1		3	66
22	11	1.72	1.72	967	22	+ 16	1		3	66
23	12	0.04	− 0.04	962	1	0	1		3	65
24	13	1.72	+ 5.63	1000	22	− 53	2		3	65
25	16	0.04	+ 4.53	864	1	− 43	+ 3		3	64
26	18	− 0.04	− 0.04	− 971	− 1	0	− 2	0	+ 3	− 64
27	94 Dec. 2.8	− 0.09	− 0.09	− 895	− 1	+ 1	− 9	0	+ 1	− 8
28	3	− 0.01	.01	1004	0	0	8	−1	1	8
29	4	+ 7.30	.01	1028	+ 93	0	7	0	1	7
30	5	− 0.01	.01	986	0	0	7	1	+ 1	7
31	18.7	0.01	.01	1010	0	0	7	0	0	− 3
32	31	0.01	0.01	1060	0	0	7	1	0	0
33	95 Jan. 1	−12.82	−12.82	980	−163	+121	8	0	− 1	0
34	8	+ 0.11	+ 0.11	898	+ 1	− 1	8	−1	1	+ 2
35	16	0.00	0.00	−1015	0	0	− 2	0	− 1	+ 4

1. Images diffuse but fairly steady. 6. Light clouds near. 11. Through clouds. 24. Through light clouds. Star 140 faint and poor, especially on groups F and G. Reject F and G? Groups F and G rejected in the differences between stars 139 and 140. 27. Through light clouds.

Normal Equations.

$$+49.86\,x - 28.07\,y + 8.25\,z + 3.14 = 0$$
$$-28.07\,x + 22.38\,y - 0.05\,z + 1.17 = 0$$
$$+\ 8.25\,x - 0.05\,y + 33.55\,z - 4.52 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
17	—1040	—0.66	—0.78	+0.60	— 37	1.0	—19	17	17	2	1
18	998	.66	.79	+ .18	— 5	1.3	— 3	15	15	4	3
19	899	.65	.81	— .81	—106	0.8	—42	11	11	2	1
20	1023	.65	.83	+0.43	+ 18	1.4	+13	19	19	4	3
21	870	.64	.85	—1.10	—136	0.9	—61	12	15	2.5	1
22	1035	.64	.86	+0.55	+ 29	1.3	+19	18	18	2	2.5
23	1024	.64	.87	+0.44	+ 18	1.5	+14	19	19	3.5	3
24	1135	.63	.87	+1.55	+128	1.0	+64	18	14	5	3.5
25	966	.62	.90	—0.14	— 43	1.1	—24	19	16	3	1.5
26	—1035	—0.62	—0.91	+0.55	+ 26	1.2	+16	19	19	3	2
							— 4				
27	— 911	—0.08	+0.98	—0.69	— 85	1.1	—47	19	19	1.5	1.5
28	1020	.08	.99	+ .40	+ 24	1.0	+12	19	19	2	0
29	948	.07	.99	— .32	— 49	1.2	—29	15	19	3	1
30	1000	.07	.99	+ .20	+ 3	1.3	+ 2	19	19	2.5	2
31	1020	— .03	.99	+ .40	+ 21	1.4	+15	19	19	3	2.5
32	1068	.00	.95	+ .88	+ 66	1.5	+49	19	19	3.5	3
33	1031	+ .01	.94	+ .51	+ 28	1.5	+21	18	18	3.5	3.5
34	906	.02	.89	— .74	— 98	1.1	—54	19	19	2.5	0.5
35	—1014	+0.05	+0.81	+0.34	+ 6	1.1	+ 3	19	19	1	1
							— 3				

Assumed $D\alpha$ 1895.0 $= -25^s.980$

$x = -0.452$

$y = -0.619$

$z = +0.245$

$d.D\alpha = -0^s.045$

$d.D\mu = -0.062$

$\pi = +0''.17 \pm 0''.051$

$p_z = 28.96$

$[pnn.3] = 0.1123$

$[pvv] = 0.1120$

$r = \pm 0^s.020$

	Stars 138 and 139.	Stars 139 and 140.
$d.\Delta\mu$	$-0^s.056$	$-0^s.006$
π	$+0''.10 \pm 0''.056$	$+0''.24 \pm 0''.060$
r_1	$\pm 0''.14$	$\pm 0''.14$
	35 obs.	35 obs.

TABLE VII (Continued).

STARS 141, 142, 143.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	+ 15s						
1	'93, Dec. 3.8	+5.48	—0.04	+ 66	+ 73	+ 1	+ 2	0	+ 3	+739
2	94 Jan. 1.7	—0.10	0.10	171	— 1	2	— 1		3	685
3	31.6	5.53	1.26	324	74	20	3		3	628
4	Feb. 1	0.01	0.01	226	0	0	4		3	626
5	7	0.01	0.01	325	0	0	1		3	615
6	21	—7.30	—0.08	+411	— 98	+ 1	— 3	0	+ 2	+589
7	94 Apr. 24.4	—0.04	—0.04	+435	— 1	+ 1	+ 1	0	+ 1	+472
8	25	.04	.04	370	0	0	1		1	470
9	26	.04	.04	404	1	1	1		1	468
10	May 2	.04	.04	464	0	0	1		1	457
11	3	.04	.04	432	1	1	+ 1		+ 1	455
12	6	.04	.04	401	0	0	0		0	449
13	10	—0.04	—0.04	+401	— 1	+ 1	0	0	0	+441
14	94 Dec. 3.8	—5.53	—0.01	+891	— 74	0	— 4	0	+ 3	+ 52
15	4	+0.45	0.01	783	+ 6	0	4		3	50
16	5	—0.01	—0.01	852	0	0	4		3	+ 48
17	95 Jan. 8.7	+2.03	+5.63	1031	+ 27	—90	6		3	— 16
18	24.6	0.00	0.00	+841	0	0	— 1	0	+ 3	— 46

1. Daylight illumination. 3. Images breaking at times. 11. Telescope jarred somewhat during the observation of star 141, between groups E and F. 13, 16. Star 141, f. 14, 15. Star 141, fff; daylight illumination. 18. Star 141, f. Sky thick.

Normal Equations.

$$+46.80\,x - 29.71\,y + 3.94\,z + 0.21 = 0$$
$$-29.71\,x + 23.71\,y - 0.60\,z + 1.09 = 0$$
$$+\ 3.94\,x - 0.60\,y + 27.11\,z - 0.34 = 0$$

1894. Jan. 27.6. No observation attempted. Image of star 142 wavering badly.

TABLE VII (Continued).

GROOMBRIDGE 1830.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	n_1'	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 15^s			^{s}							
1	+ 884	−1.08	+0.97	−0.04	+ 10	1.5	+ 8	22	25	2.5	
2	859	0.99	.96	+ .21	+ 33	1.7	+28	25	25	3.5	
3	898	.91	.69	− .18	− 10	1.3	− 6	22	23	1.5	3
4	851	.91	.68	+ .29	+ 38	1.7	+32	25	25	3.5	3.5
5	942	.89	.60	− .62	− 54	2.0	−54	25	25	5	5
6	+ 902	−0.86	+0.39	−0.22	− 15	1.3	−10	21	25	3.5	2
							0				
7	+ 909	−0.69	−0.62	−0.29	− 39	2.0	−39	25	25	4.5	4.5
8	842	.68	.63	+ .38	+ 37	2.0	+37	25	25	5	5
9	874	.68	.64	+ .06	+ 4	1.7	+ 3	25	25	4.5	3
10	923	.66	.72	− .43	− 45	1.8	−40	25	25	3.5	4
11	889	.66	.72	− .09	− 12	1.7	−10	25	25	4	3.5
12	850	.65	.75	+ .30	+ 28	1.7	+24	25	25	3	3
13	+ 842	−0.64	−0.80	+0.38	+ 34	1.6	+27	25	25	2.5	2.5
							0				
14	+ 868	−0.08	+0.97	+0.12	− 1	1.1	− 1	22	25	3	1.5
15	838	0.07	.97	+ .42	+ 30	1.7	+25	22	25	4	4
16	899	− .07	.98	− .19	− 32	1.2	−19	25	25	2	1
17	949	+ .02	.93	− .69	− 84	1.3	−55	20	22	3.5	2
18	+ 797	+0.07	+0.78	+0.83	+ 66	1.3	+43	25	25	—	—
							− 1				

Assumed $D\alpha$ 1895.0 = +15^s.880 $d.D\alpha = -0^s.018$ $p_z = 26.03$

$x = -0.175$ $d.D\mu = -0.026$ $[pnn.3] = 0.0642$

$y = -0.265$ $[pvv] = 0.0664$

$z = +0.032$ $\pi = +0''.02 \pm 0''.055$ $r = \pm 0^s.022$

	Stars 141 and 142.	Stars 142 and 143.
$d.\Delta\mu$	−0^s.019	−0^s.007
π	+0″.03 ±0″.071	+0″.03 ±0″.053
r_1	±0″.17	±0″.13
	18 obs.	18 obs.

TABLE VII (Continued).

STARS 144, **145**, 146.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*	—30*s*						
1	'94, Jan. 7.7	— 0.06	— 0.06	—1162	0	— 1	— 7	0	+ 2	—145
2	24.6	.06	.06	1194	0	1	13		1	138
3	26	.06	.06	1094	0	1	7		1	137
4	Feb. 15	.08	0.08	1122	+ 1	1	9		1	129
5	20	— 0.08	—14.60	— 970	+ 1	—172	— 9	0	+ 1	—127
6	94 May 4.4	— 0.04	— 0.04	—1191	0	0	+ 1	0	+ 5	— 99
7	8	.04	.04	1171	0	0	1		5	96
8	11	.04	.04	1226	0	0	1		5	95
9	12	.04	0.04	1231	+ 1	0	1		6	95
10	13	.04	7.63	1110	0	— 90	3		6	94
11	16.3	.04	0.55	1208	0	6	+ 4		6	93
12	18	.04	0.04	1251	0	0	— 2		6	92
13	25	— 0.04	—13.87	—1031	+ 1	—164	+ 2	0	+ 7	— 89
14	94 Dec. 18.7	— 0.01	— 0.01	—1239	0	0	— 9	0	+ 1	— 5
15	31	.01	.01	1278			10	—1	+ 1	+ 1
16	95 Jan. 1	— .01	— .01	1278			10	0	0	1
17	16	0.00	0.00	—1276	0	0	— 3	—1	— 1	+ 7
	18. Rejected Observation.									
18	94 Jan. 27.6	— 0.01	+ 1.68	—1308	0	+ 20	— 8	0	+ 1	—137

3. Star 146, fff. 4. Light clouds near. 10. Star 146, f; sky hazy. 11. Star 146, ff. 13. Star 146, fff; daylight illumination. 18. Star 146, ff. Bright moon and haze; sky covered with light clouds later. Star images in general much disturbed on this date, but this was more marked in the case of the zenith stars.

Normal Equations.

$$+43.76\,x - 24.36\,y + 4.39\,z + 0.59 = 0$$
$$-24.36\,x + 19.02\,y + 1.42\,z - 1.77 = 0$$
$$+\ 4.39\,x + 1.42\,y + 29.80\,z - 1.72 = 0$$

TABLE VII (Continued).

LACAILLE 4955.

No.	$D\alpha$ 1895.0 *	τ	Sin(L−M)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
	− 31s			s							
1	− 313	−0.98	+0.93	+0.23	+ 14	1.9	+14	25	25	4	
2	345	.93	.79	+ .55	+ 46	1.8	+42	25	25	3	
3	238	.93	.77	−0.52	− 61	1.1	−34	25	25	2	2
4	259	.87	.50	−0.31	− 39	1.6	−31	25	25	3.5	2
5	− 276	−0 86	+0.42	−0.14	− 22	1.6	−18	25	17	4	4
							− 5				
6	− 284	−0.66	−0.72	−0.06	− 12	1.6	−10	25	25	2.5	2.5
7	261	.65	.77	− .29	− 35	1.7	−30	25	25	4	3
8	315	.64	.80	+ .25	+ 19	1.7	+16	25	25	3	3
9	318	.64	.81	+ .28	+ 22	1.8	+20	25	25	3.5	3.5
10	285	.63	.82	− .05	− 10	1.9	−10	25	20	5	5
11	297	.63	.85	+ .07	+ 2	1.3	+ 2	25	20	2	2
12	339	.62	.87	+ .49	+ 43	1.4	+30	25	25	2.5	1.5
13	− 274	−0.60	−0.92	−0.16	− 22	0.7	− 8	25	12	3	2
							+ 1				
14	− 252	−0.03	+1.00	−0.38	− 24	1.7	−20	25	25	3	3
15	287	.00	0.97	− .03	+ 12	1.8	+11	25	25	4	3.5
16	287	+ .01	0.97	− .03	+ 12	1.6	+10	25	25	3.5	2
17	− 274	+0.05	+0.87	−0.16	0	1.6	0	25	25	2.5	2.5
							0				
				18. Rejected Observation.							
18	− 432	−0.92	+0.75	+1.42	+134	1.7	+114	25	24	4	3

Assumed $D\alpha$ 1895.0 = −31s.290 x = + 0.120 y = + 0.244 z = + 0.029

$d.D\alpha$ = +0s.012 $d.D\mu$ = +0.024

π = +0″.02 ±0″.044

p_z = 26.63 [pnn.3] = 0.0306 [pvv] = 0.0316 r = ±0s.016

Including observation 18.

$d.D\alpha$ = +0s.022, $d.D\mu$ = +0s.053, π = −0″.06 ±0″.064, r = ±0s.024; 18 obs.

	Stars 144 and 145. Including obs. 18.	Stars 144 and 145. Omitting obs. 18.	Stars 143 and 146. Omitting obs. 18.
$d.\Delta\mu$	+0s.020	+0s.012	+0s.012
π	−0″.06 ±0″.070	−0″.01 ±0″.069	+0″.08 ±0″.069
r_1	±0″.17	±0″.16	±0″.16
	18 obs.	17 obs.	17 obs.

TABLE VII (Continued).

STARS 147, 148, 149.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s	— 36s						
1	'94, Jan. 7.7	— 5.58	— 0.06	— 591	+25	0	0	0	— 2	— 10
2	24	0.06	.06	550	0	0			2	10
3	26	0.06	.06	565	0	0			2	10
4	27	1.69	0.01	700	7	0			1	9
5	31.6	5.53	5.53	575	24	—22			1	9
6	Feb. 1	0.10	0.01	781	0	0			1	9
7	5	12.26	.01	701	54	0			1	9
8	7	0.01	.01	577	0	0			1	9
9	15	0.08	0.08	669	0	0			— 1	9
10	20	0.08	4.31	624	0	—17			0	9
11	21	— 4.84	— 0.08	— 676	+21	0	0	0	0	— 9
12	94 May 3.4	— 0.04	— 0.04	— 583	0	0	0	0	+ 3	— 7
13	4	.04	.04	633	0				3	7
14	6	.04	.04	616	0				4	7
15	8	.04	.04	579	0				4	6
16	10	.04	.04	654	0				4	6
17	11	.04	.04	564	0				4	6
18	12	.04	.04	564	0				4	6
19	13	0.04	.04	602	0				4	6
20	16	5.56	.04	694	+24				4	6
21	18.3	0.04	.04	659	0				4	6
22	25	— 5.56	— 0.04	— 619	+24	0	0	0	+ 4	— 6
23	94 Dec. 18.8	— 0.01	— 0.01	— 575	0	0	0	—1	— 3	0
24	31.7	1.78	.01	596	+ 8			0	3	
25	95 Jan. 1	— 0.01	— 0.01	— 584	0	0	0	—1	— 3	0

TABLE VII (Continued).

LALANDE 22954-68.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	— 36^s			^{s}							
1	— 578	—0.98	+0.96	—0.32	— 56	1.3	—36	22	25	2	
2	562	.93	.84	— .48	— 69	1.7	—59	25	25	3	
3	577	.93	.82	— .33	— 54	1.2	—32	25	25	0.5	2
4	703	.92	.81	+ .93	+ 72	1.4	+50	24	25	4	4
5	583	.91	.77	—0.27	— 47	1.2	—28	22	22	3	1.5
6	791	.91	.75	+1.81	+161	1.2	+97	24	25	3.5	1
7	657	.90	.71	+0.47	+ 27	1.1	+15	18	25	3	0.5
8	587	.89	.68	— .23	— 41	2.0	—41	25	25	4.5	5
9	679	.87	.57	+ .69	+ 52	1.6	+42	25	25	4	2.5
10	650	.86	.50	+ .40	+ 23	1.6	+18	25	21	3	3
11	— 661	—0.86	+0.48	+0.54	+ 37	1.6	+30	20	25	4	2.5
							+ 5				
12	— 587	—0.66	—0.64	—0.23	— 26	1.7	—22	25	25	3	3
13	637	.66	.66	+ .27	+ 24	1.8	+22	25	25	4	4
14	619	.65	.68	+ .09	+ 7	1.4	+ 5	25	25	2.5	2
15	581	.65	.71	— .29	— 30	2.0	—30	25	25	4.5	4.5
16	656	.64	.73	+ .46	+ 45	1.6	+36	25	25	2.5	2.5
17	566	.64	.74	— .44	— 45	1.8	—40	25	25	3.5	4
18	566	.64	.75	— .44	— 45	2.0	—45	25	25	4.5	4.5
19	604	.63	.77	— .06	— 6	2.0	— 6	25	25	5	5
20	672	.63	.80	+ .62	+ 62	1.6	+50	22	25	3	3
21	661	.62	.82	+ .51	+ 51	1.7	+43	25	25	3.5	2.5
22	— 597	—0.60	—0.88	—0.13	— 12	1.4	— 8	22	25	3.5	2
							0				
23	— 579	—0.03	+1.00	—0.31	— 8	1.8	— 7	25	25	3.5	4
24	591	.00	0.99	—0.19	+ 5	1.6	+ 4	24	25	3	3
25	— 588	+0.01	+0.99	—0.22	+ 2	2.0	+ 2	25	25	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
26	'95, Jan. 8.7	$-12^s.70$	$-0^s.11$	— 672	+56	0	0	0	— 3	0
27	16	0.00	0.00	— 526	0	0	0	—1	— 3	0

1. Images unsteady and diffuse. 3. Haze. Light clouds near? 4. Star 147, fff; star 149, f. 6. Star 147, one thread rejected. 19. Bright moon; sky somewhat hazy.

Normal Equations.

$$+71.10\,x - 42.60\,y + 5.62\,z + 1.74 = 0$$
$$-42.60\,x + 32.89\,y + 0.78\,z - 4.58 = 0$$
$$+5.62\,x + 0.78\,y + 43.86\,z - 0.39 = 0$$

STARS 150, 151, 152.

		s	s	+ 133^s						
1	'94, Jan. 7.7	— 0.06	—12.74	+ 803	— 2	+282	+17	+1	—10	—117
2	27	9.01	16.33	1142	270	361	20	1	13	111
3	31	4.63	12.82	920	139	283	19	1	15	110
4	Feb. 1	0.18	8.84	937	5	195	22	0	15	109
5	5	0.01	18.25	725	0	403	8	1	16	108
6	7	0.01	7.23	1000	0	160	7	1	16	107
7	15.6	5.60	18.32	955	167	405	20	1	18	105
8	20	18.32	18.32	1230	540	405	22	0	20	103
9	21	17.22	27.78	1010	515	614	17	1	20	102
10	25	5.60	18.32	953	168	405	15	1	21	101
11	27	—19.91	—12.89	+1441	—595	+285	+14	+1	—22	—100
12	94 May 25.4	+ 5.48	— 7.32	+ 808	+164	+162	— 4	+1	—36	— 72
13	26	— 5.56	—18.71	870	—167	+414	7	1	36	72
14	31	+ 5.48	+ 7.27	1139	+164	—161	1	1	36	71
15	June 2.3	+ 7.35	— 1.79	812	+220	+ 40	0	0	36	70
16	3	— 1.22	18.28	766	— 37	404	5	1	36	70
17	11	+ 5.48	—23.39	+ 471	+164	+517	— 7	+1	—35	— 67

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
26	− 619	+0.02	+0.96	+0.09	+ 35	1.6	+28	18	25	3.5	3
27	− 530	+0.05	+0.91	−0.80	− 53	1.3	−34	25	25	2	1
							− 1				

Assumed $D\alpha$ 1895.0 = $-36^s.610$ $\quad d.D\alpha = +0^s.028$ $\quad p_z = 41.08$

$x = +0.278$ $\quad d.D\mu = +0.050$ $\quad [pnn.3] = 0.1472$

$y = +0.499$ $\quad [pvv] = 0.1464$

$z = -0.036$ $\quad \pi = -0''.03 \pm 0''.066$ $\quad r = \pm 0^s.026$

Omitting observations 4 and 6.

$d.D\mu = +0^s.026$, $\pi = +0''.05 \pm 0''.057$, $r_1 = \pm 0''.022$; 25 obs.

Stars 148 and 149. $d.\Delta\mu = +0^s.052$, $\pi = -0''.04 \pm 0''.081$, $r_1 = \pm 0''.25$; 27 obs.

43 COMAE BERENICES.

	+ 133^s			^{s}							
1	+ 974	−0.98	+1.00	+0.56	+ 67	1.0	+34	19	12	1.5	
2	1130	.92	0.94	−1.00	− 89	1.3	−58	20	16	3	
3	959	.91	.91	+0.71	+ 81	1.0	+40	21	18	2	0.5
4	1025	.91	.91	+ .05	+ 15	1.5	+11	24	19	3.5	3
5	1013	.90	.87	+ .17	+ 27	1.5	+20	25	15	2.5	3
6	1045	.89	.86	− .15	− 5	1.9	− 5	25	21	5	5
7	1091	.87	.78	− .61	− 52	1.4	−36	22	15	4	3
8	986	.86	.72	+ .44	+ 52	1.3	+34	15	15	4	3
9	1005	.86	.71	+ .25	+ 33	0.9	+15	13	9	3.5	1.5
10	1084	.84	.66	− .54	− 47	1.8	−42	22	15	5	5
11	+1024	−0.84	+0.63	+0.06	+ 13	1.6	+10	14	18	5	5
							+ 2				
12	+1023	−0.60	−0.73	+0.07	− 5	1.7	− 4	22	15	4.5	4.5
13	1003	.60	.74	+ .27	+ 15	1.4	+10	22	14	4	3
14	1035	.58	.79	− .05	− 18	1.4	−13	22	15	2.5	2.5
15	966	.58	.81	+ .64	+ 51	1.3	+33	20	16	3.5	3
16	1023	.58	.82	+ .07	− 6	1.5	− 4	24	15	3	3
17	+1044	−0.55	−0.89	−0.14	− 28	1.2	−17	22	6	5	5
							+ 1				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT'	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
18	'94, Dec. 31.7	− 0.01	− 0.01	+ 869	0	0	+23	+2	+ 5	0
19	95 Jan. 8	+ 0.11	5.19	977	+ 3	+115	32	2	4	+ 3
20	16	7.23	0.42	722	216	9	8	2	+ 3	6
21	27	5.51	− 7.28	709	165	+161	13	2	0	9
22	Feb. 15.6	+ 8.91	+ 1.91	783	+267	− 42	18	2	− 4	15
23	18	− 5.44	−23.23	+ 654	−163	+513	+18	+2	− 5	+ 16
24	96 Feb. 6.7	+ 4.89	− 0.12	+ 762	+146	+ 3	−21	+4	+13	+132
25	7	5.40	0.12	804	162	3	21	4	13	133
26	13.6	5.40	0.12	698	162	3	21	4	12	134
27	16	5.40	7.40	502	161	164	8	3	11	135
28	19	+ 3.47	− 1.80	+ 665	+104	+ 40	− 7	+4	+10	+136
29	96 May 25.4	+ 5.40	− 0.12	+ 734	+162	+ 3	−35	+3	− 7	+168
30	28	− 0.12	12.93	554	− 4	236	35	2	7	169
31	30.3	+ 5.40	0.12	704	+161	3	34	3	7	170
32	June 1	5.40	.12	727	162	3	32	2	6	171
33	10	5.40	.12	692	161	2	33	3	6	174
34	11	+ 5.40	− 0.12	+ 726	+162	+ 3	−33	+3	− 5	+174

2. The night appears to have been a poor one; light clouds were forming in the southern sky at $11^h.4$ and the sky was still hazy at $13^h.6$. 15. Thick haze. Stars 150 and 151; one thread rejected on each star. 17. Daylight illumination. 18. Notes made upon other stars on this night indicate that the conditions of observation were poor.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.33	6.97	7.53	3
5th	6.80	6.80	7.18	4

Normal Equations.

$+67.65\,x + 6.58\,y + 6.72\,z - 4.05 = 0$

$+ 6.58\,x + 65.51\,y - 24.81\,z + 7.76 = 0$

$+ 6.72\,x - 24.81\,y + 45.76\,z - 6.82 = 0$

STARS 153, 154, 155.

				− 112s						
		s	s							
1	'94, Jan. 7.7	− 5.36	+ 1.29	− 184	+ 55	+ 4	+ 18	−1	−34	−149
2	24	12.74	− 0.06	247	130	0	20	0	30	142
3	26	−18.30	− 5.58	− 329	+187	− 18	+ 17	−1	−30	−141

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
				s							
18	+ 899	0.00	+0.99	+1.31	+136	1.2	+82	19	19	3	2
19	1136	+0.02	1.00	—1.06	—101	1.4	—71	19	16	3	3
20	966	.05	0.99	+0.64	+ 69	1.0	+34	21	14	2	1
21	1059	.08	.94	— .29	— 25	1.2	—15	22	15	3	2
22	1039	.13	.78	— .09	— 7	1.3	— 4	20	16	1.5	3
23	+1035	+0.14	+0.74	—0.05	— 4	1.3	— 3	22	12	3.5	3
							+ 4				
24	+1039	+1.10	+0.87	—0.09	— 12	1.3	— 8	21	19	3	2
25	1098	1.11	.86	— .68	— 71	1.3	—46	22	19	3.5	2
26	992	1.12	.80	+ .38	+ 34	1.0	+17	22	19	1	0.5
27	968	1.13	.77	+ .62	+ 57	1.1	+31	22	15	1	1
28	+ 952	+1.14	+0.73	+0.78	+ 80	0.7	+28	13	12	1	0
							+ 4				
29	+1028	+1.40	—0.73	+0.02	— 23	1.6	—18	22	19	4.5	3
30	965	1.41	.77	+ .65	+ 40	1.9	+38	25	18	4.5	4.5
31	1000	1.41	.79	+ .30	+ 4	1.8	+ 4	22	19	5	4.5
32	1027	1.42	.81	+ .03	— 23	1.6	—18	22	19	4.5	3.5
33	993	1.44	.88	+ .37	+ 10	1.8	+ 9	22	19	5	5
34	+1030	+1.45	—0.89	0.00	— 28	1.7	—24	22	19	4.5	4
							— 2				

19. From notes of this date made on other stars near 43 Comae in declination, it appears that the conditions of observation may have been worse for this group than here indicated. 20. Images breaking frequently. 33. Daylight illumination. 34. Daylight illumination; est'd mags., 8.2, 7.0, 8.2.

Assumed $D\alpha$ 1895.0 $= +134^s.030$ $d.D\alpha = -0^s.007$ $p_z = 35.09$

$x = -0.066$ $d.D\mu = -0.007$ $[pnn.3] = 0.1312$

$y = -0.066$ $[pvv] = 0.1324$

$z = +0.123$ $\pi = +0''.09 \pm 0''.053$ $r = \pm 0^s.022$

61 VIRGINIS.

	— 112^s			s							
1	— 316	—0.98	+1.00	—0.04	+ 19	1.5	+14	16	18	4	
2	269	0.93	0.96	—0.51	— 29	0.9	—13	12	19	1	
3	— 315	—0.92	+0.95	—0.05	+ 17	1.2	+10	15	22	3.5	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
4	'94, Jan. 27.7	—18.25	— 5.53	— 377	+186	—17	+20	0	—29	—141
5	31	12.82	0.01	285	131	0	19	—1	29	139
6	Feb. 1	12.82	0.01	303	131	0	23	1	29	139
7	5	27.37	5.53	365	279	17	8	0	28	137
8	7	12.82	0.01	265	131	0	7	1	28	136
9	21.6	18.78	4.63	312	192	—15	18	0	24	130
10	25	18.32	— 0.08	323	187	0	15	—1	23	128
11	27	—18.32	+ 0.93	— 375	+187	+ 3	+14	0	—22	—127
12	94 May 25.4	—10.89	— 0.04	— 357	+111	0	— 4	—1	— 4	— 91
13	26	—18.28	— 0.04	416	186	0	7	0	4	91
14	31	+ 0.04	+ 0.04	235	0	0	1	1	4	89
15	June 2.3	— 5.56	— 1.64	324	57	— 5	0	0	4	88
16	3	18.28	0.04	364	186	0	5	1	4	88
17	11	18.28	.04	428	186	0	8	0	4	84
18	12	12.85	.04	370	131	0	— 6	1	4	84
19	13	12.85	0.04	329	131	0	+ 3	0	4	83
20	14	— 5.56	— 5.56	— 329	+ 57	— 18	+ 4	—1	— 4	— 83
21	94 Dec. 18.8	—18.25	—18.25	— 468	+186	— 58	+23	—2	— 25	— 5
22	31	12.82	0.01	485	131	0	23	1	24	+ 1
23	95 Jan. 1	29.06	— .01	639	296	0	24	2	23	1
24	8.7	8.89	+ .11	372	91	0	33	1	22	4
25	16	12.81	.00	376	131	0	8	2	20	7
26	29	0.00	.00	255	0	0	8	1	17	12
27	Feb. 14.6	0.00	.00	304	0	0	15	2	13	19
28	15	12.81	.00	454	131	0	18	1	12	19
29	18	—18.16	+ 0.08	— 535	+185	0	+18	—2	—12	+ 20
30	96 Feb. 6.7	—12.93	— 0.12	— 559	+132	0	—22	—3	— 1	+167
31	7	—12.93	— 0.12	— 553	+132	0	—22	—3	— 1	+168

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
4	— 358	—0.92	+0.95	+0.38	+ 60	1.6	+48	15	22	4	4
5	304	.91	.92	— .16	+ 5	1.5	+ 4	18	25	3.5	2
6	318	.91	.91	— .02	+ 19	1.2	+11	18	25	3	1
7	260	.90	.88	— .60	— 40	0.9	—18	10	22	1	0.5
8	292	.89	.87	— .28	— 8	1.7	— 7	18	25	4.5	3.5
9	271	.86	.72	— .49	— 33	1.0	—16	13	20	2	0.5
10	273	.84	.67	— .47	— 32	1.7	—27	15	25	4.5	4
11	— 320	—0.84	+0.64	0.00	+ 14	1.9	+13	15	24	4.5	4.5
							+ 2				
12	— 346	—0.60	—0.71	+0.26	+ 11	1.6	+ 9	19	25	3.5	3
13	332	.60	.72	+ .12	— 3	1.5	— 2	15	25	2.5	3
14	330	.58	.77	+ .10	— 6	1.5	— 4	24	24	2	2.5
15	364	.58	.79	+ .44	+ 27	1.5	+20	22	24	3	2.5
16	276	.58	.80	— .44	— 61	1.3	—40	15	25	3	2
17	338	.55	.87	+ .18	0	1.8	0	15	25	4.5	4.5
18	334	.55	.88	+ .14	— 4	1.6	— 3	18	25	3	3
19	282	.55	.89	— .38	— 57	1.7	—48	18	25	3.5	3.5
20	— 374	—0.55	—0.90	+0.54	+ 35	1.6	+28	22	22	3.5	3.5
							— 4				
21	— 349	—0.03	+0.93	+0.29	+ 47	1.3	+31	15	15	3	3
22	355	.00	0.99	+ .35	+ 54	1.6	+43	18	25	3	3
23	343	+ .01	0.99	+ .23	+ 42	1.4	+29	9	25	4	4
24	267	.02	1.00	— .53	— 34	1.2	—20	20	25	2.5	1
25	252	.05	0.99	— .68	— 49	1.7	—42	18	25	4	3.5
26	253	.08	.93	— .67	— 49	1.4	—34	25	25	2	2
27	285	.13	.80	— .35	— 20	1.5	—15	25	25	2.5	3
28	299	.13	.79	— .21	— 7	1.3	— 5	18	25	3	2
29	— 326	+0.14	+0.75	+0.06	+ 19	1.4	+13	15	25	2.5	2.5
							0				
30	— 286	+1.10	+0.88	—0.34	— 22	1.2	—13	18	25	2	1
31	— 279	+1.11	+0.87	—0.41	— 29	1.3	—19	18	25	3	1

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
32	'96, Feb. 13.6	—12.93	— 0.12	—575	+132	0	—19	—3	0	+170
33	16	12.93	0.12	593	132	— 1	8	3	+ 1	171
34	19	—14.64	— 0.12	—626	+149	0	— 8	—3	+ 2	+173
35	96 May 25.4	—12.93	— 0.12	—717	+132	0	—36	—2	+23	+213
36	28	18.36	.12	741	187	0	36	2	23	214
37	30	12.93	.12	626	132	0	34	2	23	215
38	June 1	12.93	.12	676	132	— 1	33	2	23	216
39	11.3	12.93	.12	665	132	0	34	2	24	220
40	12	0.12	.12	564	1	0	32	2	24	220
41	13	0.12	.12	603	1	— 1	33	2	24	221
42	14	— 0.12	— 0.12	—564	+ 1	0	—33	—2	+24	+221

1. Stars 154 and 155 observed through screen I; reduction to observation without screen, —0s.025, applied. 15. Thick haze. 17, 18, 19, 20. Daylight illumination.

Normal Equations.

$$+91.88\,x + 8.99\,y + 6.46\,z + 0.63 = 0$$
$$+ 8.99\,x + 78.75\,y - 21.99\,z + 7.91 = 0$$
$$+ 6.46\,x - 21.99\,y + 66.34\,z - 14.70 = 0$$

STARS 156, **157**, 158.

		s	*s*	— 8*s*					
1	'94, Dec. 31.8	— 0.01	— 5.53	— 380	0	+105	—12	0	+ 1
2	95 Jan. 1	— 2.03	— 6.56	317	— 23	+124	13		2
3	16.7	+ 1.76	+ 2.02	284	+ 20	— 38	4		4
4	Feb. 14	0.00	0.00	220	0	0	8		7
5	15	—10.67	— 1.83	244	—122	+ 35	10		8
6	18	0.48	6.95	368	5	131	10		8
7	22.6	— 5.38	— 1.69	— 226	— 61	+ 32	— 9	0	+ 8
8	96 Feb. 6.7	— 1.86	— 2.43	— 293	— 21	+ 46	+12	0	— 3
9	7	— 9.37	— 5.64	— 241	—107	+107	+12	0	— 3

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
32	— 295	+1.12	+0.81	−0.25	— 14	1.4	−10	18	25	3.5	2
33	301	1.13	0.78	−0.19	— 9	1.3	— 6	18	25	3	1.5
34	— 313	+1.14	+0.74	−0.07	+ 2	1.4	+ 1	17	25	4.5	2.5
							— 9				
35	— 387	+1.40	−0.71	+0.67	+ 44	1.4	+31	18	25	3.5	2
36	355	1.41	.74	+ .35	+ 12	1.6	+10	15	25	4	3
37	292	1.41	.77	— .28	— 52	1.6	−42	18	25	4.5	3
38	341	1.42	.79	+ .21	— 4	1.6	— 3	18	25	4	3
39	325	1.45	.88	+ .05	— 21	1.6	−17	18	25	2 5	3
40	353	1.45	.88	+ .33	+ 7	1.7	+ 6	25	25	3	3
41	393	1.46	.89	+ .73	+ 46	1.9	+44	25	25	5	4
42	— 353	+1.46	−0.90	+0.33	+ 6	1.5	+ 4	25	25	3.5	3
							+ 4				

21. Daylight illumination. 39, 40, 41, 42. Daylight illumination. 40. Est'd mags.: 7.0, 6.3, 6.5. 42. Est'd mags., 7.9, 7.5, 8.5; star 155, through clouds?

Assumed $D\alpha$ 1895.0 $= -11^s.320$ $d.D\alpha = -0^s.002$ $p_z = 59.31$

$x = -0.018$ $d.D\mu = -0.004$ $[pnn.3] = 0.0912$

$y = -0.040$ $[pvv] = 0.0912$

$z = +0.210$ $\pi = +0''.16 \pm 0''.033$ $r = \pm 0^s.016$

LALANDE 25224.

	-8^s			s							
1	— 286	0.00	+0.97	+0.06	+ 30	1.4	+21	25	22	2	2
2	227	+ .01	0.97	— .53	— 30	1.7	−26	23	21	5	4
3	302	.05	1.00	+ .22	+ 47	1.0	+24	23	22	1	0
4	221	.13	0.86	— .59	— 38	1.7	−32	25	25	3	3
5	333	.13	.85	+ .53	+ 75	1.3	+49	18	21	3	2
6	244	.14	.82	— .36	— 16	1.2	−10	22	21	2	0.5
7	— 256	+0.15	+0.78	−0.24	— 5	1.6	— 4	20	24	4	3
							+ 3				
8	— 259	+1.10	+0.92	−0.21	+ 11	1.0	+ 6	21	21	0.5	0
9	— 232	+1.11	+0.91	−0.48	— 16	1.6	−13	19	22	3.5	3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
10	'96, Feb. 13.7	— 0.12	— 1.89	—283	— 1	+ 36	+12	0	— 2	
11	20.6	—21.48	5.44	220	—245	103	7		1	
12	21	+ 1.65	— 3.72	—322	+ 19	+ 70	+ 6	0	— 1	
13	96 May 28.4	— 0.12	— 0.12	—267	— 1	+ 2	+18	0	0	
14	30	.12	.12	282	1	2	18		— 1	
15	June 1	.12	.12	277	1	2	17		1	
16	10.3	.12	.12	368	2	2	18		2	
17	11	.12	.12	342	1	2	18		3	
18	12	0.12	.12	322	1	3	18		3	
19	13	— 5.64	— 0.12	—252	— 64	+ 2	+18	0	— 3	

For estimates of magnitudes see the next following solution.

Normal Equations.

$$+47.98\,x + 46.43\,y + 1.95\,z - 2.09 = 0$$
$$+46.43\,x + 61.67\,y - 17.07\,z + 2.17 = 0$$
$$+ 1.95\,x - 17.07\,y + 33.34\,z - 8.37 = 0$$

STARS 158, **159**, 160.

				+ 25s						
		s	s							
1	'94, Jan. 31.7	— 3.57	— 1.47	+ 819	+ 4	— 11	+23	0	—27	+229
2	Feb. 1	0.01	0.01	799	0	0	27		28	228
3	7	0.01	0.01	693	0	0	8		28	224
4	20	0.08	0.08	761	0	1	27		30	215
5	21	27.44	27.44	1087	+33	203	21		30	214
6	25	1.85	0.08	770	+ 2	1	19		31	211
7	27.6	0.08	0.08	832	0	1	17		31	210
8	Mar. 1	— 0.08	— 0.08	+ 747	0	— 1	+19	0	—31	+208
9	94 June 2.4	—16.64	—16.64	+1064	+20	—123	0	0	—30	+145
10	3	— 7.26	— 7.26	+ 965	+ 9	— 54	— 6	0	—30	+144

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
	$+25^s$			^{s}							
10	− 238	+1.12	+0.87	−0.42	− 12	1.7	−10	25	23	3.5	3.5
11	356	1.14	0.80	+0.76	+105	1.1	+58	13	21	3.5	1.5
12	− 228	+1.14	+0.79	−0.52	− 24	1.3	−16	24	23	3	2
							+ 5				
13	− 248	+1.41	−0.68	−0.32	− 44	1.7	−37	25	25	3.5	3
14	264	1.41	.71	− .16	− 30	1.9	−28	25	25	5	4
15	260	1.42	.73	− .20	− 34	1.9	−33	25	25	4.5	4
16	352	1.44	.82	+ .72	+ 54	2.0	+54	25	25	5	5
17	326	1.45	.83	+ .46	+ 29	1.8	+26	25	25	4.5	4
18	305	1.45	.84	+ .25	+ 7	1.8	+ 6	25	25	4.5	4
19	− 299	+1.45	−0.85	+0.19	+ 1	1.9	+ 1	22	25	5	5
							− 2				

2. Star 156, ff; observed through light clouds. 3. Images breaking badly, frequently disappearing entirely. 5. Stars 156 and 157, ff. 7. Star 156, ff. 8. Images breaking badly. 19. Daylight illumination.

Assumed $D\alpha$ 1895.0 $= -8^s.280$ $\quad d.D\alpha = -0^s.006$ $\quad p_z = 11.78$

$x = -0.055$ $\quad d.D\mu = +0.009$ $\quad [pnn.3] = 0.0638$

$y = +0.090$ $\quad [pvv] = 0.0644$

$z = +0.300$ $\quad \pi = +0''.24 \pm 0''.098$ $\quad r = \pm 0.021$

LALANDE 25372.

	$+25^s$			^{s}							
1	+1037	−0.91	+0.97	−0.57	− 28	1.0	−14	21	22	2	0.5
2	1026	.91	.96	− .46	− 18	1.7	−15	25	25	3.5	3
3	897	.89	.93	+ .83	+110	1.8	+99	25	25	4.5	4
4	972	.86	.82	+0.08	+ 29	1.7	+25	25	25	4	3
5	1122	.86	.81	−1.42	−122	0.8	−49	10	10	3.5	1
6	970	.84	.77	+0.10	+ 28	2.0	+28	24	25	5	5
7	1027	.84	.74	−0.47	− 30	2.0	−30	25	25	5	5
8	+ 942	−0.83	+0.72	+0.38	+ 54	1.7	+46	25	25	4	3
							+11				
9	+1076	−0.58	−0.71	−0.96	−153	0.7	+54	15	15	3	3
10	+1028	−0.58	−0.72	−0.48	−106	1.4	+74	21	21	3.5	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
11	'94, June 12.3	−20.97	−20.97	+ 923	+25	−155	− 7	0	−29	+138
12	13	5.56	5.56	797	7	41	+ 4		29	137
13	14	− 7.02	− 7.02	+ 887	+ 8	− 52	+ 5	0	−29	+137
14	94 Dec. 31.8	− 9.16	− 2 39	+1000	+11	− 18	+28	0	− 7	0
15	95 Jan. 16.7	+ 5.38	+ 4.79	1024	− 6	+ 35	10	+1	9	− 12
16	27	13.40	17.19	1023	16	127	15	0	11	19
17	Feb. 14	+ 2.95	2.95	1130	− 4	22	18	+1	12	31
18	15	− 1.93	0.00	1019	+ 2	0	22	0	12	32
19	18	− 1.95	3.60	1007	+ 2	27	22	0	13	34
20	21.6	+ 0.08	0.08	1044	0	1	23	+1	13	36
21	22	− 1.69	+ 0.08	+1071	+ 2	+ 1	+21	0	−13	− 38
22	96 Feb. 6.7	− 0.74	− 6.67	+1250	+ 1	− 49	−26	+1	+ 8	−276
23	7	0.12	3.72	1312	0	28	26	1	8	276
24	13	− 1.89	0.12	1313	+ 2	1	23	1	7	281
25	19	+ 2.71	.22	1284	− 3	2	9	0	6	285
26	20.6	− 0.12	.12	1232	0	1	15	1	6	286
27	21	− 3.72	− 0.12	+1262	+ 4	− 1	−14	+1	+ 6	−286
28	96 May 28.4	− 0.29	− 0.29	+1303	+ 1	− 2	−43	0	+ 5	−352
29	30	.12	.12	1333	0	1	43	+1	5	354
30	June 1	.12	.12	1310	0	1	39	0	6	355
31	10.3	.12	.12	1299	0	1	41	1	7	361
32	11	.12	.12	1294	0	1	40	0	7	362
33	12	.12	.12	1315	0	− 1	40	+1	8	363
34	13	− 0.12	− 0.12	+1286	0	0	−40	0	+ 8	−363

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
11	+ 895	—0.55	—0.82	+0.85	+ 22	1.2	+13	12	12	4.5	4
12	875	0.55	0.83	+1.05	+ 42	1.9	+40	22	22	5	5
13	+ 956	—0.55	—0.84	+0.24	— 40	0.9	—18	20	20	5	5
							—19				
14	+1014	0.00	+0.96	—0.34	— 6	1.0	— 3	19	22	2	2
15	1043	+ .05	1.00	—0.63	— 33	0.7	—12	15	16	1	0
16	1119	.08	0.98	—1.39	—110	1.0	—55	13	12	3	2
17	1124	.13	.87	—1.44	—120	1.5	—90	22	22	3	3
18	999	.13	.87	—0.19	+ 4	1.3	+ 3	22	25	3	2
19	1011	.14	.84	— .31	— 9	1.0	— 4	20	23	2	0.5
20	1020	.14	.81	— .40	— 20	1.7	—17	25	25	2.5	3.5
21	+1044	+0.15	+0.80	—0.64	— 44	1.7	—37	24	25	4	3
							—27				
22	+ 909	+1.10	+0.93	+0.71	+ 98	0.7	+34	23	21	0.5	0
23	991	1.11	.93	— .11	+ 16	1.6	+13	25	23	3.5	3
24	1018	1.12	.88	— .38	— 14	1.7	—12	23	25	3.5	3.5
25	991	1.14	.83	— .11	+ 10	1.1	+ 6	18	18	1.5	3.5
26	937	1.14	.82	+ .43	+ 64	1.1	+35	25	25	3.5	1.5
27	+ 972	+1.14	+0.81	+0.08	+ 28	1.3	+18	23	25	3	2
							+16				
28	+ 912	+1.41	—0.66	+0.68	+ 13	1.6	+10	24	24	3.5	3
29	941	1.41	.68	+ .39	— 17	1.9	—16	25	25	5	4
30	921	1.42	.71	+ .59	+ 2	1.9	+ 2	25	25	4.5	4
31	904	1.44	.80	+ .76	+ 14	2.0	+14	25	25	5	5
32	898	1.45	.81	+ .82	+ 20	1.9	+19	25	25	4.5	4
33	920	1.45	.82	+ .60	— 3	1.9	— 3	25	25	4.5	4
34	+ 891	+1.45	—0.83	+0.89	+ 26	2.0	+26	25	25	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
35	'96, June 14.3	— 0.12	— 0.12	+1373	0	— 1	—40	+1	+ 8	—364
36	17	—27.48	—27.48	+1624	+33	—203	—40	0	+ 8	—366

1, 3. Star 159, f. 5. Observation of star 159 delayed on account of a wrong setting. 9. Star 159, fff; star 160, f. 10. Star 159, ff. 13. Star 159, fff; daylight illumination. 15, 22. Images breaking badly, disappearing frequently. Star 158, three threads rejected. 16. Star 158, f; 159, fff; 160, ff; sky thick. 17. Star 159, one thread rejected. 18. Star 159, ff.

Epoch.	Estimated Magnitudes.†					No. of Ests.
4th	8.45	8.28	7.50	8.45	7.90	4
5th	8.29	7.91	7.19	8.16	7.67	7

† Including stars 156 and 157.

Normal Equations.

$+79.18\,x + 27.10\,y + 11.19\,z + 10.96 = 0$

$+27.10\,x + 85.25\,y - 29.26\,z + 20.75 = 0$

$+11.19\,x - 29.26\,y + 53.01\,z - 24.79 = 0$

STARS 161, 162, 163.

				— 60s						
		s	s							
1	'94, Jan. 27.7	— 8.97	—12.82	—610	— 66	+186	—17	0	+19	—148
2	31	3.44	0.47	502	25	7	16	0	19	146
3	Feb. 1	0.01	5.53	558	0	80	19	0	19	146
4	5	3.45	10.33	644	26	150	7	—1	20	144
5	7	0.01	5.53	516	0	80	6	0	20	143
6	25	19.91	18.32	578	147	266	13	0	23	135
7	Mar. 1	31.00	18.32	491	229	266	13	0	24	133
8	2.6	7.36	12.89	719	54	187	12	—1	24	133
9	12	21.55	18.28	693	159	265	5	0	26	128
10	13	— 1.72	— 7.26	—476	— 13	+105	— 6	0	+26	—128
11	94 May 31.4	— 0.04	— 5.56	—639	0	+ 81	+ 1	0	+30	— 93
12	June 2	0.04	0.04	606	0	1	0	0	30	92
13	3	13.36	12.85	575	— 99	186	5	0	30	92
14	12	12.85	12.85	625	95	186	+ 5	—1	29	88
15	13	— 5.34	—10.89	—628	— 40	+158	— 3	0	+29	— 88

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	n_1'	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
35	+ 977	+1.45	−0.84	+0.03	− 61	0.9	−27	25	25	5	3.5
36	+1056	+1.46	−0 87	−0.76	−142	0.5	−36	10	10	4.5	4
							− 1				

25. Images breaking frequently. Star 159, image bright enough when not disturbed. 34. Daylight illumination. 35. Faint lamp illumination. Est'd mags., 7.5, 8.8, 7.8. Clouds? 36. Daylight illumination. Est'd mags., 7.9, 9.0, 7.9.

Assumed $D\alpha$ 1895.0 $= +25^s.980$ $\quad d.D\alpha = -0^s.021$ $\quad p_z = 37.02$

$x = -0.211$ $\quad d.D\mu = 0.000$ $\quad [pnn.3] = 0.1879$

$y = -0.001$ $\quad [pvv] = 0.1884$

$z = +0.512$ $\quad \pi = +0''.40 \pm 0''.065$ $\quad r = \pm 0^s.025$

	Obs. 1—21.	Obs. 14—36.
$d.D\alpha$	$+0^s.022$	$+0^s.047$
$d.D\mu$	$+0^s.064$	$-0^s.061$
π	$+0''.33$	$+0''.25$

α BOOTIS.

	−60s			s							
1	− 636	−0.92	+1.00	+0.56	+ 25	1.4	+18	14	18	4	
2	663	.91	0.99	+ .83	+ 52	1.0	+28	17	8	2	2
3	624	.91	.99	+ .44	+ 13	1.2	+ 8	19	22	3	2
4	652	.90	.98	+ .72	+ 42	1.2	+25	17	19	4	2
5	565	.89	.97	− .15	− 45	1.9	−43	19	22	5	5
6	584	.84	.85	+ .04	− 25	1.6	−20	14	15	5	5
7	576	.83	.81	−0.04	− 34	1.3	−22	8	15	3.5	3
8	708	.83	.80	+1.28	+ 98	0.8	+39	15	18	3	1
9	694	.80	.68	+1.14	+ 83	1.3	+54	13	15	3.5	3
10	− 492	−0.80	+0.67	−0.88	−118	1.4	−83	18	21	4	3
							0				
11	− 620	−0.58	−0.57	+0.40	+ 6	1.5	+ 4	19	22	3.5	3
12	667	.58	.60	+ .87	+ 52	1.5	+39	19	19	3	3
13	545	.58	.62	− .35	− 70	1.5	−52	17	18	3.5	3
14	589	.55	.73	+ .09	− 26	1.6	−21	18	18	4.5	4
15	− 572	−0.55	−0.74	−0.08	− 42	1.7	−36	16	19	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
16	'94, June 14.4	—12.85	—12.85	—643	— 95	+186	— 3	0	+29	— 87
17	18	12.85	12.85	661	— 95	186	7	0	29	86
18	22.3	— 0.04	— 5.56	—672	0	+ 81	— 5	—1	+28	— 84
19	95 Jan. 8.8	+ 0.11	— 5.41	—683	+ 1	+ 78	—28	—1	— 2	+ 4
20	16	0.00	5 52	605	0	80	7	1	— 1	7
21	Feb. 14.7	+ 0.79	5.11	770	+ 6	74	13	1	+ 3	20
22	15	—17.14	18.24	676	—127	264	15	1	3	21
23	18	— 6.93	10.77	750	— 51	156	15	1	4	22
24	21	+ 0.08	5.44	720	+ 1	79	16	1	4	23
25	22	— 7.20	12.73	719	— 53	185	14	1	4	24
26	25	+ 0.08	— 5.44	—719	+ 1	+ 79	—15	—1	+ 5	+ 25
27	96 Feb. 7.7	— 0.12	— 5.64	—814	— 1	+ 82	+19	—2	+ 8	+177
28	13	0.12	5.64	815	1	82	18	2	10	179
29	16	12.93	12.93	689	96	187	7	2	10	180
30	19	2.63	10.67	794	19	155	6	1	11	182
31	20	0.12	5.64	801	1	82	11	2	11	182
32	21	10.97	10.97	813	81	159	10	2	12	183
33	24	— 0.35	— 5.64	—829	— 3	+ 82	+13	—2	+12	+184
34	96 June 10.4	— 0.12	— 5.64	—869	— 1	+ 82	+29	—1	— 8	+231
35	11	0.12	5.64	880	1	82	29	1	8	232
36	12	0.12	5.64	863	1	82	28	1	8	232
37	13	7.40	12.93	933	55	187	28	1	8	233
38	14	0.12	5.64	883	1	82	28	1	8	233
39	17.3	0.12	5.64	923	1	82	28	2	8	234
40	19	—18.36	—12.93	—870	—136	+187	+28	—1	— 9	+235

1. Stars 161 and 162, f. 5. Star 162, est'd mag., 7.5. 8. Images faint and diffuse; sky somewhat thick. 15, 16, 17. Star 161, f. 21. Images disappearing at times.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	8.00	7.70	7.38	5
5th	7.82	7.56	6.96	5

Normal Equations.

$+84.28\,x + 22.54\,y + 12.07\,z - 1.29 = 0$

$+22.54\,x + 81.50\,y - 14.72\,z - 24.13 = 0$

$+12.07\,x - 14.72\,y + 57.18\,z + 0.76 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
16	—613	—0.55	—0.75	+0.33	— 2	1.5	— 2	18	18	4	3
17	634	0.54	0.80	+0.54	+ 20	1.5	+15	18	18	4	3
18	—653	—0.52	—0.83	+0.73	+ 38	1.0	+19	19	22	3.5	3
							— 4				
19	—631	+0.02	+0.96	+0.51	+ 52	1.2	+31	19	22	3	1.5
20	527	.05	.99	—0.53	— 51	1.0	—26	19	22	2	0.5
21	681	.13	.93	+1.01	+105	1.4	+74	18	21	3	3
22	531	.13	.93	—0.49	— 46	1.0	—23	13	15	2.5	1.5
23	635	.14	.91	+ .55	+ 59	0.8	+24	13	19	2	1
24	630	.14	.88	+ .50	+ 54	1.5	+40	19	22	2.5	3
25	574	.15	.87	— .06	— 2	1.5	— 2	15	18	4	4
26	—625	+0.16	+0.85	+0.45	+ 49	1.8	+44	19	22	5	5
							+20				
27	— 531	+1.11	+0.97	—0.49	— 12	1.5	— 9	19	22	3	3
28	529	1.12	.94	—0.51	— 13	1.2	— 8	19	22	2.5	1
29	403	1.13	.92	—1.77	—140	1.2	—84	18	18	2.5	2
30	460	1.14	.90	—1.20	— 83	0.8	—33	8	13	2.5	0.5
31	518	1.14	.89	—0.62	— 25	1.5	—19	19	22	4	3
32	532	1.14	.88	—0.48	— 11	1.5	— 8	19	19	4	3
33	—543	+1.15	+0.86	—0.37	+ 1	1.8	+ 1	18	22	4.5	5
							—23				
34	—537	+1.44	—0.71	—0.43	— 10	1.8	— 9	19	22	5	5
35	547	1.45	.72	— .33	0	1.8	0	19	22	5	5
36	531	1.45	.73	— .49	— 16	1.8	—14	19	22	5	4.5
37	549	1.45	.74	— .31	+ 2	1.6	+ 2	15	18	5	5
38	550	1.45	.76	— .30	+ 3	1.7	+ 3	19	22	5	4
39	590	1.46	.79	+ .10	+ 43	1.8	+39	19	22	4.5	4.5
40	—566	+1.47	—0.81	—0.14	+ 19	1.7	+16	15	18	5	5
							+ 5				

22, 23. Star 161, ff. 40. Sky filled with very light clouds. Star images bright enough.

Assumed $D\alpha$ 1895.0 $= -60^s.580$

$x = -0.088$

$y = +0.337$

$z = +0.092$

$d.D\alpha = -0^s.009$

$d.D\mu = +0.034$

$\pi = +0''.07 \pm 0''.049$

$p_z = 51.18$

$[pnn.3] = 0.1779$

$[pvv] = 0.1800$

$r = \pm 0^s.023$

TABLE VII (Continued).

STARS 164, **165**, 166.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	+70s						
1	'95, Jan. 16.8	—19.17	—19.17	+800	− 75	+117	+ 2	+1	+ 2	
2	29.7	0.00	0.00	673	0	0	3	1	3	
3	Feb. 14	0.00	0.00	671	0	0	6	1	4	
4	15	− 1.77	− 1.76	652	− 7	+ 11	6	1	4	
5	18	+ 0.08	+ 0.08	654	0	0	6	1	4	
6	21	+ 0.08	+ 0.08	683	0	0	7	1	4	
7	22	− 5.44	− 5.44	531	− 21	+ 33	6	1	4	
8	25	+ 0.08	+ 0.08	+606	0	− 1	+ 6	+1	+ 4	
9	96 Feb. 6.7	− 0.12	− 0.12	+719	0	+ 1	− 8	+2	+10	
10	7	.12	.12	814	− 1	1	8	2	10	
11	13	.12	.12	778	0	1	7	2	10	
12	16	.12	.12	694	1	0	7	2	10	
13	20	0.12	0.12	688	0	1	5	2	10	
14	21	1.97	1.97	704	8	12	4	2	10	
15	24	1.89	1.89	586	7	11	5	2	10	
16	Mar. 1.6	− 5.64	− 0.12	+603	− 22	+ 1	− 7	+2	+10	
17	96 June 10.4	− 0.12	− 0.12	+584	0	+ 1	−13	+1	+ 2	
18	11	.12	.12	741	− 1	1	13	2	2	
19	12	.12	.12	683	0	1	13	1	2	
20	13	.12	.12	607	1	0	12	2	2	
21	17	.12	.12	675	0	1	12	1	2	
22	19	.12	.12	630	1	1	12	2	2	
23	23.3	.12	.12	765	0	+ 1	18	1	2	
24	24	− 0.12	− 0.12	+669	− 1	0	−18	+2	+ 2	

1. Image of star 165 breaking badly. Comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 2, shows that the relative apparent displacement is systematic and falls almost entirely on star 165. *Comes* visible at 90°.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	7.59	8.26	7.64	7
3d	7.63	8.34	7.61	8

Normal Equations.

$+58.42\,x + 55.13\,y + 16.20\,z + 11.52 = 0$

$+55.13\,x + 70.72\,y - 4.02\,z + 9.92 = 0$

$+16.20\,x - 4.02\,y + 42.05\,z - 2.41 = 0$

TABLE VII (Continued).

LALANDE 26481.

No.	$D\alpha$1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+70^s			^{s}							
1	+ 847	+0.05	+0.98	—1.67	—200	0.5	—50	13	13	3	2
2	680	.08	1.00	0.00	— 31	1.0	—16	25	25	2.5	1
3	682	.13	0.95	— .02	— 33	1.7	—28	25	25	3	3
4	667	.13	.95	+ .13	— 19	1.2	—11	24	23	3	1.5
5	665	.14	.93	+ .15	— 16	1.8	—14	25	25	3.5	3.5
6	695	.14	.91	—0.15	— 48	1.7	—46	25	25	3.5	3
7	554	.15	.90	+1.26	+ 95	1.7	+81	22	22	4	4
8	+ 616	+0.16	+0.87	+0.64	+ 30	2.0	+30	25	25	5	5
							— 7				
9	+ 724	+1.10	+0.99	—0.44	— 31	1.7	—26	25	25	2.5	3
10	818	1.11	.98	—1.38	—124	1.2	—74	25	25	3.5	3
11	784	1.12	.96	—1.04	— 91	1.7	—77	25	25	3	3
12	698	1.13	.94	—0.18	— 7	1.3	— 5	25	25	3	1.5
13	696	1.14	.91	— .16	— 4	1.3	— 3	25	25	3	1.5
14	716	1.14	.91	— .36	— 25	0.7	— 9	23	23	3.5	1
15	597	1.15	.88	+ .83	+ 94	1.8	+85	24	24	5	4
16	+ 587	+1.17	+0.83	+0.93	+102	1.6	+82	22	25	2.5	2.5
							— 3				
17	+ 575	+1.44	—0.66	+1.05	+ 71	2.0	+71	25	25	5	4.5
18	732	1.45	.67	—0.52	— 86	1.5	—64	25	25	3.5	2
19	674	1.45	.68	+ .06	— 27	1.8	—24	25	25	4.5	3.5
20	598	1.45	.69	+ .82	+ 47	1.6	+38	25	25	4	3
21	667	1 46	.74	+ .13	— 23	2.0	—23	25	25	5	4.5
22	622	1.47	.77	+ .58	+ 20	2.0	+20	25	25	4.5	4.5
23	751	1.48	.81	— .71	—108	1.2	—65	25	25	4	3
24	+ 654	+1.48	—0.82	+0.26	— 13	1.2	— 8	25	25	5	3
							— 7				

2, 3, 4. Star 165, ff. 14. Images diffuse. Star 165, fff; est'd mags., 7.7, 9.0, 8.0. Comparison with observation 15 shows a result similar to that from the comparison of observations 1 and 2. 15, 17, 20. *Comes* noted at 90°. 24. Daylight illumination. Star 166 became very faint, 8.7 mag., on group B. Clouds?

Assumed $D\alpha$ 1895.0 = +70^s.680 $d.D\alpha$ = —0^s.072 p_z = 17.60

x = — 0.724 $d.D\mu$ = +0.044 [$pnn.3$] = 0.2233

y = + 0.438 [pvv] = 0.2236

z = + 0.374 π = +0".28 ±0".127 r = ±0^s.035

TABLE VII (Continued).

STARS 167, 168, 169.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*	+21*s*						
1	'94, Feb. 5.7	—16.33	—16.33	+1236	— 7	—44	— 3	0	+ 5	—119
2	7	7.23	7.23	1103	3	20	2		5	118
3	20	31.51	33.09	1376	13	89	8		6	113
4	27	21.83	—21.83	1252	9	—59	5		6	110
5	Mar. 13.6	— 5.56	+12.80	+1134	— 2	+35	— 3	0	+ 8	—105
6	94 June 12.4	+ 5.48	+ 5.48	+1096	+ 2	+15	+ 2	0	+ 2	— 72
7	13	—21.79	—27.40	1329	— 9	—74	— 1		2	72
8	18	— 0.04	— 0.04	1215	0	0	3		2	71
9	22	+ 5.48	+12.80	1160	+ 2	+35	2		2	69
10	26	12.80	12.80	1093	5	35	3		2	68
11	30.3	+12.80	+12.80	+1109	+ 5	+35	— 3	0	+ 2	— 66
12	95 Jan. 29.8	— 7.28	0.00	+1186	— 3	0	— 3	0	+ 4	+ 10
13	Feb. 18.7	+12.92	+12.92	1024	+ 5	+35	6		2	18
14	21	12.92	12.92	1032	5	35	7	0	2	19
15	22	12.92	12.92	1118	5	35	6	+1	2	20
16	25	+12.92	+12.92	+1004	+ 5	+35	— 6	0	+ 2	+ 21
17	96 Feb. 7.7	+12.72	+12.72	+ 967	+ 5	+34	+ 8	+1	— 4	+146
18	13	— 0.12	— 0.12	888	0	0	8	0	5	148
19	16	+12.72	+12.72	855	5	34	3	1	5	149
20	19	5.40	5.40	928	2	15	3	0	6	150
21	Mar. 12.6	+12.72	+12.72	+ 884	+ 5	+34	+ 5	+1	— 9	+158
22	96 June 19.4	— 0.12	+ 7.19	+ 796	0	+19	+12	0	—14	+194
23	23	+ 5.40	— 0.12	+ 887	+ 2	0	+12	+1	—14	+195

TABLE VII (Continued).

LALANDE 27026.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+21^s			^{s}							
1	+1068	—0.90	+1.00	+0.22	+ 19	0.8	+ 8	16	16	2	0.5
2	965	.89	0.99	+1.25	+121	1.6	+97	21	21	5	3
3	1159	.86	.95	—0.69	— 73	0.5	—18	6	7	3	1
4	1075	.84	.90	+0.15	+ 10	0.8	+ 4	7	7	3.5	3.5
5	+1067	—0.80	+0.77	+0.23	+ 20	1.6	+16	22	18	4	4
							+21				
6	+1045	—0.55	—0.62	+0.45	+ 47	1.7	+40	22	22	5	4
7	1175	.55	.63	— .85	— 82	1.1	—45	7	10	4	4
8	1143	.54	.69	— .53	— 50	2.0	—50	25	25	4.5	4.5
9	1128	.52	.73	— .38	— 34	1.8	—31	22	18	4.5	4.5
10	1064	.51	.78	+ .26	+ 29	1.5	+22	18	18	3	3
11	+1082	—0.50	—0.82	+0.08	+ 12	1.6	+10	18	18	4	4
							— 9				
12	+1194	+0.08	+1.00	—1.04	—112	1.2	—67	15	19	2.5	2.5
13	1078	.14	0.96	+0.12	+ 2	1.5	+ 2	18	18	4	3.5
14	1086	.14	.94	+ .04	— 5	1.5	— 4	18	18	3.5	3.5
15	1175	.15	.93	— .85	— 95	1.6	—76	18	18	4.5	4
16	+1061	+0.16	+0.91	+0.29	+ 20	1.7	+17	18	18	5	5
							—26				
17	+1157	+1.11	+0.99	—0.67	— 81	1.2	—49	18	18	3.5	2
18	1039	1.12	.98	+ .51	+ 36	1.5	+27	19	19	3.5	3
19	1042	1.13	.97	+ .48	+ 34	1.5	+25	18	18	4	3
20	1092	1.14	.95	— .02	— 17	1.6	—14	22	22	3.5	3.5
21	+1078	+1.20	+0.77	+0.12	— 1	1.5	— 1	18	18	3.5	2.5
							— 2				
22	+1007	+1.47	—0.71	+0.83	+ 77	1.7	+65	19	15	5	5
23	+1083	+1.48	—0.75	+0.07	0	1.6	0	22	19	4.5	3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
24	'96, June 24.3	+ 5.40	+12.72	+ 877	+ 2	+34	+12	0	—14	+196
25	29	+ 5.40	+12.72	+ 846	+ 2	+34	+12	+1	—14	+197

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	6.10†	7.43	7.37	3	$+55.20\,x + 14\,90\,y + 7.35\,z + 3.03 = 0$
5th	5.7	7.9	7.6	1	$+14.90\,x + 46.13\,y + 2.30\,z + 2.96 = 0$
					$+\ 7.35\,x + 2.30\,y + 39.09\,z + 2.41 = 0$

† Individual estimates of the magnitude of star 167 vary from 5.5 to 6.7.

STARS 170, 171, 172.

				+ 52s						
		s	s							
1	'94, Jan. 26.8	+ 5.46	—19.34	+ 7	+ 51	+147	+ 5	0	+14	+133
2	Feb. 5.7	—21.75	17.60	344	—204	134	2	0	14	129
3	25	+ 5.44	7.36	214	+ 51	56	4	0	12	122
4	Mar. 1	— 0.08	14.28	247	— 1	109	4	+1	11	120
5	13.6	— 0.04	—12.72	+ 282	0	+ 97	+ 2	0	+10	+116
6	94 June 12.4	—12.85	—29.09	+ 207	—121	+221	— 1	0	+ 1	+ 79
7	13	21.55	41.56	216	203	316	+ 1	0	+ 1	79
8	22	— 5.56	—33.05	172	— 52	+251	2	0	0	75
9	26	+ 7.27	+ 2.04	225	+ 68	— 16	2	+1	0	74
10	30.3	— 0.04	— 7.32	367	0	+ 56	2	0	0	72
11	July 1	— 0.04	—27.46	+ 190	0	+209	+ 3	0	0	+ 72
12	95 Feb. 18.7	+ 7.39	+ 7.39	+ 426	+ 69	— 56	+ 5	+1	+ 5	— 19
13	21	7.39	7.39	410	70	56	6	1	5	20
14	22	7.39	7.39	420	69	56	5	+1	5	21
15	25	+ 7.39	+ 7.39	+ 453	+ 70	— 56	+ 5	0	+ 5	— 22
16	96 Feb. 7.7	+ 7.19	+10.97	+ 544	+ 67	— 83	— 6	+2	— 2	—159
17	13	— 7.40	— 5.42	+ 695	— 70	+ 41	— 6	+1	— 2	—161

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
24	+1107	+1.48	−0.77	−0.17	− 23	1.5	−17	22	18	5	3
25	+1078	+1.50	−0.82	+0.12	+ 4	1.6	+ 3	22	18	5	4
							+13				

1. Star 168, ff. 3. Star 168, fff; image diffuse. 7. Star 168, ff; haze and bright moon. 11. Daylight illumination. 12. A poor night in general for observations. 24. Clouds; est'd mags., 6.7, 8.5, 7.9.

Assumed $D\alpha$ 1895.0 $= +22^s.090$ $d.D\alpha = -0^s.003$ $p_z = 38.11$

$x = -0.034$ $d.D\mu = -0.005$ $[pnn.3] = 0.1469$

$y = -0.051$ $[pvv] = 0.1472$

$z = -0.052$ $\pi = -0''.04 \pm 0''.064$ $r = \pm 0^s.028$

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	+ 52^s			^{s}							
1	+ 357	−0.93	+0.99	+0.83	+ 97	0.7	+34	22	8	2.5	1
2	419	.90	1.00	+0.21	+ 35	0.6	+10	7	9	0.5	0
3	459	.84	0.93	− .19	− 6	1.7	− 5	22	15	5	5
4	491	.83	0.90	− .51	− 38	1.3	−25	19	11	3	3
5	+ 507	−0.80	+0.79	−0.67	− 55	1.4	−38	19	12	4	4
							− 3				
6	+ 386	−0.55	−0.60	+0.54	+ 43	1.2	+26	18	9	5	4
7	410	.55	.62	+ .30	+ 18	0.5	+ 4	13	2	4	4
8	448	.52	.72	− .08	− 22	1.2	−13	22	7	4.5	4.5
9	354	.51	.77	+ .86	+ 72	1.3	+47	15	12	3	3
10	497	.50	.81	− .57	− 71	1.2	−43	19	15	4	3
11	+ 474	−0.50	−0.82	−0.34	− 48	1.1	−26	19	4	3.5	3
							− 1				
12	+ 431	+0.14	+0.97	+0.09	+ 36	1.3	+23	15	15	4	3.5
13	416	.14	.95	+ .24	+ 51	1.3	+33	15	15	3.5	3.5
14	423	.15	.95	+ .17	+ 44	1.4	+31	15	15	4.5	4
15	+ 455	+0.16	+0.93	−0.15	+ 11	1.6	+ 9	15	15	5	5
							+24				
16	+ 363	+1.11	+1.00	+0.77	+117	1.1	+64	15	17	3.5	2
17	+ 498	+1.12	+0.98	−0.58	− 19	1.3	−12	15	16	3.5	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
18	'96, Feb. 16.7	+ 7.19	+ 7.19	+ 676	+ 67	— 55	— 2	+2	— 2	—162
19	19	— 7.40	— 7.40	710	— 69	+ 56	2	1	2	164
20	Mar. 12.6	+ 7.19	— 0.08	+ 671	+ 67	+ 1	— 4	+2	— 5	—172
21	96 June 19.4	— 0.12	— 7.40	+ 664	— 1	+ 56	— 9	+1	—15	—212
22	23	14.64	23.43	645	138	178	9	1	15	213
23	24	— 0.12	— 7.40	510	— 1	+ 56	9	1	16	214
24	29.3	+ 7.19	+ 7.19	675	+ 68	— 55	9	1	16	215
25	30	+ 5.40	—10.86	+ 562	+ 51	+ 82	— 9	+ 1	—16	—216

1, 7. Star 172, fff. 6. Star 172, ff. 10. Daylight illumination; threads obscure. 11. Daylight illumination on star 172 only, star 0′.4 too low in the field. 23. Heavy clouds passing over the meridian.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th.	7.65	6.00	8.07	3
5th.	7.78	6.14	8.14	5

Normal Equations.

$+40.25\,x + 14.45\,y + 8.37\,z - 6.19 = 0$

$+14.45\,x + 38.93\,y - 4.43\,z - 5.20 = 0$

$+ 8.37\,x - 4.43\,y + 29.75\,z - 5.58 = 0$

STARS 173, 174, 175.

				−50s						
		s	s							
1	'94, Jan. 27.8	—12.12	— 6.98	—1244	— 519	+ 54	+ 41	0	—58	—203
2	Feb. 1	0.01	0.01	1704	0	0	47	0	62	200
3	21.7	27.44	5.60	519	1175	43	37	0	76	188
4	Mar. 12.6	—13.13	—11.56	—1357	— 562	+ 89	+ 11	—1	—87	—177
5	94 June 14.4	— 0.03	— 0.03	—1746	— 1	0	+ 8	0	—69	—121
6	24	+ 1.80	+ 3.65	1596	+ 77	— 28	15	0	62	115
7	28	— 0.04	— 0.04	1780	— 2	0	18	0	58	112
8	29.3	0.04	0.04	1757	2	0	18	—1	58	111
9	July 2	— 0.04	— 0.04	1823	— 2	0	28	0	55	109
10	3	+ 1.62	+ 1.62	1709	+ 69	— 12	28	0	54	109
11	4	—11.56	— 0.04	—1290	— 495	0	+ 28	0	—53	—108

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
18	+ 524	+1.13	+0.97	−0.84	− 44	1.3	−29	15	15	4	3
19	530	1.14	0.96	−0.90	− 50	1.3	−32	15	15	3.5	3.5
20	+ 560	+1.20	+0.79	−1.20	− 80	1.2	−48	15	11	3.5	2.5
							−11				
21	+ 484	+1.47	−0.71	−0.44	− 31	1.6	−25	19	15	5	5
22	449	1.48	.74	−0.09	+ 3	1.4	+ 2	17	12	4.5	3.5
23	327	1.48	.75	+1.13	+125	1.0	+62	19	15	5	3
24	449	1.50	.81	−0.09	+ 2	1.3	+ 1	15	15	5	4
25	+ 455	+1.50	−0.82	−0.15	− 4	1.6	− 3	22	13	4	3
							+ 7				

Assumed $D\alpha$ 1895.0 = +52s.440 $d.D\alpha$ = +0s.007 p_z = 26.37

x = + 0.069 $d.D\mu$ = +0.013 $[pnn.3]$ = 0.0996

y = + 0.130 $[pvv]$ = 0.0972

z = + 0.188 π = +0″.14±0″.065 r = ±0s.023

	Obs. 1—15.	Obs. 16—25.
y = +0.1296, assumed from the complete solution.		
$d.D\alpha$	+0s.005	+0s.014
π	+0″.07 ±0″.081	+0″.24 ±0″.117
r	±0s.020	±0s.028

LALANDE 27298.

	− 51s			s							
1	− 929	−0.92	+0.99	+0.19	− 4	1.0	− 2	15	21	4	1
2	919	.91	1.00	+0.09	− 14	1.4	−10	25	25	3.5	3.5
3	878	.86	0.95	−0.32	− 56	1.1	−31	10	22	3	2
4	−1084	−0.80	+0.80	+1.74	+152	1.0	+76	18	20	4	3
							+ 8				
5	− 929	−0.55	−0.63	+0.19	+ 12	1.8	+11	21	21	5	5
6	709	.52	.74	−2.01	−207	0.8	−83	21	22	4	2.5
7	934	.51	.79	+0.24	+ 19	1.7	+16	25	25	3.5	3
8	911	.50	.80	+0.01	− 4	1.7	− 3	25	25	4	3
9	961	.50	.83	+0.51	+ 46	2.0	+46	25	25	5	5
10	787	.49	.84	−1.23	−128	1.4	−90	23	23	5	4
11	− 918	−0.49	−0.85	+0.08	+ 4	1.9	+ 4	20	26	5	5
							−14				

33 OB.

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
12	'95, Jan. 27.7	+27.29	+32.94	−2728	+1168	−254	+26	−1	−22	+ 17
13	Feb. 15	0.00	0.00	1997	0	0	37	1	35	28
14	Mar. 6	− .02	− 0.02	1976	− 1	0	35	1	47	39
15	10.6	.02	0.02	1954	1	0	39	−1	50	42
16	17	− 0.02	− 5.54	−1996	− 1	+ 43	+33	0	−53	+ 47
17	96 Feb. 20.7	− 7.15	− 7.15	−1825	− 306	+ 55	−26	−1	0	+251
18	21	0.12	0.12	2161	5	1	23	1	0	252
19	24	0.12	0.12	2181	5	1	31	2	− 2	253
20	Mar. 1	0.12	− 0.12	2115	5	+ 1	40	1	6	257
21	13.6	− 1.99	+ 3.24	−1964	− 85	− 25	−29	−2	−12	+264
22	96 June 17.4	− 0.12	− 0.12	−2179	− 5	+ 1	−67	−1	+10	+322
23	25	.12	.12	2204	5	1	67	1	17	327
24	26	.12	.12	2259	5	1	67	1	18	327
25	July 1.3	.12	− 0.12	2206	5	+ 1	67	1	22	330
26	2	0.12	+18.12	1995	5	−140	67	1	22	331
27	5	−12.93	−12.93	−1779	− 553	+113	−67	−1	+25	+333

1. Images greatly agitated; stars 173 and 175, f, invisible on some threads. 2. Illumination of field too dim. 4. Through clouds. 6. Stars 173 and 175, f; star 174, fff on groups E, F, and G. Light clouds. 11. Daylight illumination.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th.	7.75	7.55	6.92	4
5th.	7.67	7.80	7.17	3

Normal Equations.

$+67.35\,x + 27.11\,y - 1.70\,z + 11.79 = 0$

$+27.11\,x + 63.14\,y - 3.55\,z + 6.46 = 0$

$-1.70\,x - 3.55\,y + 47.59\,z + 4.97 = 0$

STARS 176, 177, 178.

		s	s	+32s						
1	'94, Jan. 26.8	− 0.06	− 0.06	+1162	0	0	−11	0	+22	−158
2	27	15.18	1.68	1092	+ 5	0	13		22	157
3	Feb. 1	0.01	1.78	1092	0	0	13		22	155
4	5	−18.25	−18.25	+1052	+ 6	− 2	− 5	0	+22	−153

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt[4]{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
				s							
12	— 794	+0.08	+0.99	—1.16	—143	0.3	—21	4	7	2	1
13	968	.13	.98	+0.58	+ 31	2.0	+31	25	25	4.5	4.5
14	951	.18	.86	+ .41	+ 14	2.0	+14	25	25	4.5	4.5
15	925	.19	.82	+ .15	— 11	1.5	— 8	25	25	3	3
16	— 927	+0.21	+0.74	+0.17	— 8	2.0	— 8	25	22	4.5	4.5
							+ 2				
17	— 852	+1.14	+0.96	—0.58	— 89	1.0	—44	21	21	2	0
18	937	1.14	.95	+ .27	— 4	1.7	— 3	25	25	3.5	3
19	967	1.15	.93	+ .57	+ 26	2.0	+26	25	25	5	5
20	909	1.17	.89	— .01	— 32	1.4	—22	25	25	2.5	2
21	— 853	+1.20	+0.78	—0.57	— 87	1.1	—48	12	12	3	3
							—18				
22	— 919	+1.46	—0.67	+0.09	— 4	1.7	— 3	25	25	3.5	3.5
23	932	1.48	.77	+ .22	+ 9	1.7	+ 8	25	25	3.5	3
24	986	1.49	.78	+ .76	+ 63	2.0	+63	25	25	4.5	4.5
25	926	1.50	.83	+ .16	+ 3	1.4	+ 2	25	25	3	2
26	855	1.50	.84	— .55	— 68	1.6	—54	25	18	5	3.5
27	— 929	+1.51	—0.86	+0.19	+ 7	1.8	+ 6	18	18	4.5	4.5
							+ 4				

12. Stars 173 and 174, fff; reject? Light clouds. 15. Star 174, ff; star 175, f. Light clouds. 25. Daylight illumination. Est'd mags., 8.5, 8.5, 7.6. 26. Through clouds. Est'd mags., 8.0, 8.2, 7.5. 27. Daylight illumination. Est'd mags., 8.8, 8.5, 7.0.

Assumed $D\alpha$ 1895.0 $= -51^s.910$ $d.D\alpha = -0^s.016$ $p_z = 47.39$

$x = -0.162$ $d.D\mu = -0.004$ $[pnn.3] = 0.1535$

$y = -0.039$ $[pvv] = 0.1544$

$z = -0.113$ $\pi = -0''.05 \pm 0''.036$ $r = \pm 0.027$

LALANDE 27744.

	$+32^s$			s							
1	+1015	—0.93	+0.98	—0.35	— 41	1.1	—23	25	25	0.5	0.5
2	949	.92	0.98	+ .31	+ 24	1.0	+12	16	23	1	0.5
3	946	.91	0.99	+ .34	+ 29	1.2	+17	25	24	3.5	0.5
4	+ 920	—0.90	+1.00	+0.60	+ 55	0.9	+25	15	15	3.5	1

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
5	'94, Feb. 7.8	— 0.01	— 0.01	+1092	0	0	— 4	0	+22	—152
6	20.7	.08	5.60	1103	0	— 1	15	+1	21	146
7	21	.08	12.89	1123	0	1	12	0	21	145
8	25	.08	1.85	1123	0	0	10	0	21	143
9	27	.08	5.60	1083	0	— 1	9	0	21	142
10	Mar. 1	0.08	0.08	1125	0	0	10	0	21	141
11	12	5.56	0.04	1026	+ 2	0	3	0	20	136
12	13.6	— 0.04	— 0.04	+1129	0	0	— 5	0	+20	—136
13	94 June 14.4	— 0.04	— 0.04	+1034	0	0	— 3	0	+11	— 93
14	18	.04	.04	1052	0	0	5	0	11	91
15	22	.04	.04	1037	0	0	4	0	10	90
16	24	.04	.04	1088	0	0	5	0	10	88
17	26	.04	.04	1025	0	0	5	0	10	88
18	29	.04	.04	1020	0	0	6	+1	10	86
19	30	.04	.04	1115	0	0	6	0	10	85
20	July 1	.04	.04	1038	0	0	7	0	9	85
21	2.3	.04	.04	1094	0	0	8	0	9	84
22	3	0.04	0.04	1049	0	0	8	0	9	84
23	4	5.56	12.85	984	+ 2	— 1	8	0	9	84
24	6	0.04	5.56	1016	0	— 1	10	+1	9	82
25	10	— 0.03	— 0.04	+ 950	0	0	— 9	0	+ 8	— 80
26	95 Jan. 27.8	— 3.06	0.00	+1005	+ 1	0	— 8	0	+ 7	+ 13
27	29	0.00	0.00	952	0	0	5	+1	7	14
28	Feb. 15.7	— 5.52	— 5.52	1066	2	— 1	12	0	6	22
29	18	+ 0.08	+ 0.08	942	0	0	12	1	6	23
30	21	+ 0.08	+ 0.08	1029	0	0	12	0	6	24
31	22	— 1.69	— 1.69	990	1	0	11	+1	6	25
32	25	—12.73	—12.73	+ 935	+ 4	— 1	—11	0	+ 6	+ 26

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
5	+ 958	−0.89	+1.00	+0.22	+ 18	1.7	+15	25	25	5	3.5
6	963	.86	0.97	+ .17	+ 11	1.6	+ 9	25	22	3	3
7	986	.86	.97	− .06	− 11	1.3	− 7	25	18	3	2
8	991	.84	.95	− .11	− 16	1.8	−14	25	24	4	4
9	952	.84	.94	+ .28	+ 24	1.9	+23	25	22	4.5	4.5
10	995	.83	.93	− .15	− 20	1.7	−17	25	25	3.5	3
11	909	.80	.84	+ .71	+ 65	1.4	+46	22	25	2.5	2
12	+1008	−0.80	+0.83	−0.28	− 35	1.8	−32	25	25	3.5	4
							+ 4				
13	+ 949	−0.55	−0.57	+0.31	+ 10	2.0	+10	25	25	4.5	4.5
14	967	.53	.63	+ .13	− 9	2.0	− 9	25	25	5	4.5
15	953	.52	.67	+ .27	+ 6	1.9	+ 6	25	25	4	4
16	1005	.52	.69	− .25	− 47	1.4	−33	25	25	3	2
17	942	.51	.72	+ .38	+ 16	1.7	+14	25	25	3.5	3
18	939	.50	.75	+ .41	+ 18	1.8	+16	25	25	4	4
19	1034	.50	.77	− .54	− 76	1.7	−65	25	25	3	3
20	955	.50	.78	+ .25	+ 1	1.9	+ 1	25	25	4.5	4
21	1011	.50	.79	− .31	− 54	1.7	−46	25	25	3.5	3.5
22	966	.49	.80	+ .14	− 10	1.7	− 8	25	25	3	3.5
23	902	.49	.81	+ .78	+ 55	1.4	+38	22	18	3	2.5
24	933	.49	.83	+0.47	+ 23	1.3	+15	25	22	3	2.5
25	+ 869	−0.47	−0.87	+1.11	+ 88	1.3	+57	24	25	3	2.5
							0				
26	+1018	+0.08	+0.98	−0.38	− 29	1.1	−16	18	21	3	1
27	969	.08	.98	+0.11	+ 21	1.2	+13	25	25	2.5	1
28	1083	.13	.99	−1.03	− 93	1.5	−70	22	22	3	3
29	960	.14	.98	+0.20	+ 31	2.0	+31	25	25	4.5	4.5
30	1047	.14	.97	− .67	− 57	1.7	−46	25	25	3.5	3.5
31	1012	.15	.97	− .32	− 21	2.0	−21	24	24	5	5
32	+ 959	+0.16	+0.95	+0.21	+ 32	1.8	+29	18	18	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
33	'95, Mar. 10.7	− 0.02	− 0.02	+ 914	0	0	−12	+1	+ 5	+ 32
34	16.6	.02	0.02	927	0	0	10	0	5	35
35	17	.02	0.02	903	0	0	10	1	5	35
36	18	0.02	1.79	1008	0	0	10	0	4	36
37	20	− 5.54	− 5.54	+1001	+ 2	− 1	−10	+1	+ 4	+ 37
38	96 Feb. 7.7	− 0.12	− 0.12	+ 823	0	0	+14	+1	−10	+188
39	13	0.12	5.64	862	0	− 1	14	1	10	191
40	16	18.36	18.36	812	+ 6	2	5	1	10	192
41	19	0.12	0.12	829	0	0	5	1	10	194
42	20	3.72	5.64	793	1	1	8	1	10	194
43	21	0.12	0.12	816	0	0	7	1	10	195
44	24	0.12	0.31	790	0	0	10	1	10	196
45	Mar. 1	0.12	5.64	760	0	− 1	13	1	11	199
46	12	− 5.64	− 0.12	885	+ 2	0	9	1	11	204
47	13	+ 2.32	+ 3.80	+ 780	− 1	0	+ 9	+1	−11	+204
48	96 June 19.4	− 0.12	− 0.12	+ 757	0	0	+21	0	−21	+250
49	23	.12	.12	695	0	0	21	+1	21	252
50	25	.12	.12	776	0	0	21	0	22	253
51	26	.12	.12	750	0	0	21	1	22	253
52	29	.12	0.12	744	0	0	21	0	22	255
53	30	.12	0.12	745	0	0	21	1	22	255
54	July 1.3	0.12	5.64	674	0	− 1	21	1	22	256
55	2	12.93	0.12	725	+ 4	0	22	0	22	256
56	5	0.12	.12	754	0	0	22	+1	22	257
57	7	− 0.12	− 0.12	+ 733	0	0	+22	0	−22	+258

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
33	+ 940	+0.19	+0.86	+0.40	+ 51	1.7	+43	25	25	3	3
34	957	.21	.80	+ .23	+ 32	1.7	+27	25	25	3	3
35	934	.21	.79	+ .46	+ 56	1.8	+50	25	25	4	4
36	1038	.21	.78	— .58	— 49	1.7	—42	25	24	3.5	3.5
37	+1034	+0.22	+0.75	—0.54	— 45	1.6	—36	22	22	3.5	3.5
							— 3				
38	+1016	+1.11	+1.00	—0.36	— 9	1.2	— 5	25	25	2.5	1
39	1057	1.12	0.99	— .77	— 50	1.2	—30	25	22	2	1
40	1004	1.13	.99	— .24	+ 2	1.2	+ 1	15	15	3.5	2.5
41	1019	1.14	.98	— .39	— 12	1.4	— 8	25	25	3	2
42	986	1.14	.97	— .06	+ 20	1.6	+16	23	22	4	3
43	1009	1.14	.97	— .29	— 2	1.7	— 2	25	25	4	3
44	987	1.15	.96	— .07	+ 19	1.9	+18	25	21	5	5
45	961	1.17	.92	+0.19	+ 47	1.5	+35	25	22	3.5	2.5
46	1090	1.20	.83	—1.10	— 85	1.5	—64	22	25	3.5	2.5
47	+ 982	+1.20	+0.82	—0.02	+ 24	1.4	+17	19	18	3	3
							— 2				
48	+1007	+1.47	—0.64	—0.27	— 18	2.0	—18	25	25	5	5
49	948	1.48	.69	+ .32	+ 43	2.0	+43	25	25	5	4.5
50	1028	1.48	.72	— .48	— 39	1.7	—33	25	25	3.5	2.5
51	1003	1.49	.73	— .23	— 13	2.0	—13	25	25	5	4.5
52	998	1.50	.77	— .18	— 9	1.8	— 8	25	25	3.5	3.5
53	1000	1.50	.78	— .20	— 11	2.0	—11	25	25	4.5	4.5
54	929	1.50	.79	+ .51	+ 59	1.9	+56	25	22	4.5	4
55	985	1.50	.79	— . 5	+ 4	1.6	+ 3	18	25	5	3
56	1012	1.52	.82	— .32	— 24	1.8	—22	25	25	3.5	3.5
57	+ 991	+1.52	—0.84	—0.11	— 2	1.9	— 2	25	25	5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
58	'96, July 10.3	— 0.40	— 0.12	+ 701	0	0	+18	+1	—23	+260
59	11	— 1.02	— 5.64	+ 769	0	— 1	+18	0	—23	+260

1. Star 176, ff. 2. Star 176, ff, diffuse. Through light clouds. 24. Images breaking at times. Daylight illumination; threads obscure. 25. Daylight illumination; star 176, f. 26. Star 176, ff. 46. Observing with gloves; hands cold during observation of these stars. 55. Heavy clouds near. 57, 58, 59. Daylight illumination. 57. Est'd mags.: 7.5, 6.7, 5.5. 58. Est'd mags.: 8.3, 7.8, 6.3. 59. Est'd mags.: 9.0, 8.3, 7.5.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	7.59	6.94	5.80	8	$+158.55\,x + 48.16\,y + 18.08\,z - 2.84 = 0$
5th	7.72	7.00	5.98	8	$+48.16\,x + 147.54\,y - 24.28\,z - 17.98 = 0$
					$+18.08\,x - 24.28\,y + 113.40\,z - 10.74 = 0$

STARS 179, **180**, 181.

				+1s					
		s	s						
1	'95, Jan. 27.8	—12.81	0.00	+791	+ 1	0	+26	0	— 6
2	29	0.00	.00	840	0		17		6
3	Feb. 14.7	—12.81	.00	842	+ 1		33		5
4	15	0.00	.00	832	0		37		5
5	18	+ .08	+ .08	847	0		37		4
6	21	.08	.08	848	0		39		4
7	22	.08	.08	844	0		39		4
8	25	+ .08	+ .08	909	0		33		4
9	Mar. 6	— .02	— .02	833	0		26		4
10	10	— 0.02	— 0.02	+817	0	0	+39	0	— 4
11	96 Feb. 7.8	— 5.64	— 0.12	+868	+ 1	0	—45	0	+26
12	13	0.12	.12	885	0		42		26
13	16	0.12	.12	949	0		16		26
14	19	0.12	.12	841	0		15		26
15	21	— 5.64	— 0.12	+827	+ 1	0	—23	0	+26

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
58	+ 957	+1.53	−0.87	+0.23 s	+ 30	1.8	+27	22	25	5	5
59	+1023	+1.53	−0.88	−0.43	− 35	1.0	−18	18	22	4	4
							0				

Assumed $D\alpha$ 1895.0 = +32.980 s

x = − 0.046
y = + 0.159
z = + 0.136

$d.D\alpha$ = −0.005 s
$d.D\mu$ = +0.016

π = +0″.11 ± 0″.031

p_z = 104.67
[pnn.3] = 0.2080
[pvv] = 0.2084
r = ±0s.021

	Stars 176 and 177.	Stars 177 and 178.
$d.\Delta\mu$	+0s.001	+0s.015
π	+0″.07 ±0″.037	+0″.13 ±0″.041
r_1	±0″.18	±0″.20
	59 obs.	59 obs.

6 SERPENTIS.

	+1s										
1	+ 812	+0.08	+0.97	+0.24 s	+ 67	1.3	+44	18	25	3	1.5
2	851	.08	0.98	− .15	+ 27	1.2	+16	25	25	2	0.5
3	871	.13	1.00	− .35	+ 6	1.7	+ 5	18	25	3.5	3.5
4	864	.13	0.99	− .28	+ 12	1.7	+10	25	25	3	3
5	880	.14	.99	− .44	− 3	2.0	− 3	25	25	4.5	4.5
6	883	.14	.98	− .47	− 7	1.8	− 6	25	25	3 5	3.5
7	879	.15	.97	−0.43	− 3	1.9	− 3	25	25	3	5
8	938	.16	.96	−1.02	− 62	2.0	−62	25	25	5	5
9	865	.18	.91	−0.29	+ 8	1.9	+ 8	25	25	4	4
10	+ 852	+0.19	+0.87	−0.16	+ 21	1.7	+18	25	25	3	3
							+ 2				
11	+ 850	+1.11	+1.00	−0.14	+ 1	1.3	+ 1	22	25	2.5	1
12	869	1.12	1.00	−0.33	− 18	1.3	−12	25	25	2	1
13	959	1.13	0.99	−1.23	−109	1.7	−92	25	25	3.5	2.5
14	852	1.14	0.98	−0.16	− 2	1.5	− 2	25	25	3	2
15	+ 831	+1.14	+0.98	+0.05	+ 19	1.6	+15	22	25	4	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT'	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	+54s						
16	'96, Feb. 24.7	— 0.12	— 2.67	+ 778	0	0	—31	0	+26	
17	Mar. 1	0.12	0.12	864	0		40		27	
18	13	1.88	1.18	834	0		29		27	
19	19.6	— 0.12	— 0.12	+ 832	0	0	—31	0	+28	
20	96 June 23.4	— 1.44	+ 0.58	+ 884	0	0	—68	0	+37	
21	25	0.12	— .12	861		0	68		37	
22	26	.12	.12	799		0	68		37	
23	29	.12	.12	799		0	68		37	
24	30	.12	.12	844		0	68		38	
25	July 1	.12	.12	885		0	68		38	
26	5.3	.12	.12	844		0	68		38	
27	7	.12	.12	811		0	64		38	
28	10	.12	.12	825		0	66		39	
29	11	.12	0.12	828		0	67		39	
30	17	— 0.12	— 5.64	+ 775	0	— 1	—59	0	+39	
	31. Rejected Observation.									
31	96 July 16.3	—27.48	— 0.12	+ 634	+ 3	0	—54	0	+39	

16. Est'd mags.: 7.4, 6.3, 6.8. No clouds noted at the time, but sky became clouded over after $16^h.5$. 22. Sky filled considerably with clouds on this night. 25. Est'd mags.: 7.6, 6.4, 6.7. Sky was clearing up after a thunder shower when observations were begun; haze noted at $15^h.6$.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	6.67	5.58	6.50	6
3d	6.74	5.67	6.50	5

Normal Equations.

$+90.97\,x + 88.37\,y + 18.32\,z - 1.62 = 0$

$+88.37\,x + 118.72\,y - 19.30\,z + 15.01 = 0$

$+18.32\,x - 19.30\,y + 70.98\,z - 24.48 = 0$

STARS 182, 183, 184.

		s	s							
1	'95, Feb. 14.7	0.00	— 5.52	+2363	0	+ 703	— 31	+1	+18	+ 8
2	15	— 7.22	24.32	733	—648	3101	35	1	19	8
3	18	+ 0.08	5.44	2399	+ 7	693	35	1	22	9
4	21	+ 0.08	— 3.52	+2717	+ 7	+ 449	— 37	+1	+24	+ 9

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
16	+ 773	+1.15	+0.97	+0.63	+ 76	1.9	+72	25	23	5	5
17	851	1.17	.93	− .15	− 3	1.4	− 2	25	25	3	2
18	832	1.20	.84	+ .04	+ 13	1.3	+ 8	23	19	2.5	2
19	+ 829	+1.22	+0.78	+0.07	+ 15	1.7	+13	25	25	3.5	3
							+ 1				
20	+ 853	+1.48	−0.67	−0.17	− 47	1.9	−44	23	23	5	4.5
21	830	1.48	.69	+ .06	− 25	1.7	−21	25	25	3.5	2.5
22	768	1.49	.71	+ .68	+ 37	2.0	+37	25	25	5	5
23	768	1.50	.74	+ .68	+ 36	1.8	+32	25	25	3.5	3.5
24	814	1.50	.75	+ .22	− 10	2.0	−10	25	25	4.5	4.5
25	855	1.50	.77	− .19	− 51	1.9	−48	25	25	4.5	4
26	814	1.51	.80	+ .22	− 12	1.8	−11	25	25	3.5	3.5
27	785	1.52	.82	+ .51	+ 16	2.0	+16	25	25	5	4.5
28	798	1.53	.85	+ .38	+ 3	2.0	+ 3	25	25	5	5
29	800	1.54	.86	+ .36	+ 1	1.9	+ 1	25	25	4	4
30	+ 754	+1.54	−0.91	+0.82	+ 43	1.8	+38	25	22	5	5
							− 1				
				31. Rejected Observation.							
31	+ 622	+1.54	−0.90	+2.14	+176			10	25	4	4

28, 29, 30, 31. Daylight illumination. 28. Est'd mags.: 7.5, 5.7, 6.3. 29. Est'd mags.: 7.6, 6.3, 6.5. 30. Est'd mags.: 8.0, 7.0, 7.9. Sun setting behind bank of clouds. 31. Sun not set.

Assumed $D\alpha$ 1895.0 $= +1.^s836$
$x = +0.230$
$y = -0.263$
$z = +0.214$

$d.D\alpha = +0.^s023$
$d.D\mu = -0.026$

$\pi = +0''.17 \pm 0''.069$

$p_z = 25.43$
$[pnn.3] = 0.1203$
$[pvv] = 0.1180$
$r = \pm 0^s.023$

LALANDE 28358.

	+57^s			^{s}							
1	+ 62	+0.13	+1.00	+0.38	+ 53	1.9	+50	25	22	4.5	4.5
2	179	.13	1.00	− .79	− 64	1.1	−35	21	11	3	2
3	96	.14	0.99	+ .04	+ 19	1.9	+18	25	22	5	5
4	+170	+0.14	+0.98	−0.70	− 54	1.8	−49	25	23	4	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT *	$\Delta_1 C.c_1'$ *	$\Delta_2 C.c_2'$ *	$D\tan\delta.n$ *	Rate. *	Precess. and Nutat. *	Prop. Mot. *
		s	s							
5	'95, Feb. 22.7	+ 0.08	— 5.44	+2428	+ 7	+ 694	—35	+1	+24	+ 9
6	25	+ .08	5.44	2481	+ 7	693	32	1	26	10
7	Mar. 6	— .02	13.34	1364	— 2	1701	34	1	33	11
8	10	— 0.02	—18.26	+ 708	— 2	+2328	—37	+1	+36	+ 12
9	96 Feb. 7.8	— 0.12	— 3.72	+2555	— 11	+ 474	+42	+2	—33	+ 68
10	21.7	.12	—12.93	1350	11	+1649	22	1	23	71
11	Mar. 1	.32	+ 6.31	3841	29	— 805	37	2	16	72
12	12	0.12	— 5.64	2321	11	+ 719	27	2	10	74
13	13	4.05	23.08	409	363	2940	27	1	9	74
14	16.6	0.12	3.72	2572	11	474	27	2	7	75
15	18	— 0.12	5.64	2269	— 11	719	29	1	5	75
16	19	+ 0.98	— 5.64	+2226	+ 88	+ 719	+29	+2	— 5	+ 76
17	96 June 25.4	— 0.12	— 5.64	+2299	— 11	+ 719	+64	+1	—22	+ 92
18	26	+ 3.79	+ 7.99	3699	+340	—1019	64	1	23	92
19	29	— 0.12	— 5.64	2272	— 11	+ 719	64	1	25	93
20	30	0.12	12.93	1235	11	1649	65	1	26	93
21	July 1	0.12	6.58	2074	11	839	65	1	27	93
22	5	5.64	5.64	2724	506	719	65	1	30	94
23	7.3	0.12	1.89	2747	11	241	61	1	32	94
24	10	0.12	0.12	2963	11	15	61	1	34	95
25	11	— 0.12	— 0.12	+2932	— 11	+ 15	+61	+1	—35	+ 95

8. Star 184, ff; light clouds. 11. Images breaking frequently, invisible at times. 18. All three stars, ff or fff. Clouds. 24. Daylight illumination.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d.	7.73	6.90	7.85	6
3d.	7.86	7.26	7.96	8

Normal Equations.

$$+72.93\,x + 69.62\,y + 22.43\,z + 1.30 = 0$$
$$+69.62\,x + 91.81\,y - 4.78\,z + 7.04 = 0$$
$$+22.43\,x - 4.78\,y + 55.19\,z - 8.32 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
5	+ 128	+0.15	+0.98	−0.28	− 13	1.9	−12	25	22	4	5
6	186	.16	.97	− .86	− 71	1.9	−67	25	22	5	5
7	74	.18	.92	+ .26	+ 39	1.8	+35	25	17	4.5	4.5
8	+ 46	+0.19	+0.89	+0.54	+ 67	1.6	+54	25	15	3	3
							− 1				
9	+ 97	+1.11	+1.00	+0.03	+ 8	1.8	+ 7	25	23	4	4
10	59	1.14	0.98	+ .41	+ 46	1.6	+37	25	18	4	3
11	102	1.17	.95	− .02	+ 2	0.8	+ 1	19	23	1.5	0.5
12	122	1.20	.87	− .22	− 19	1.7	−16	25	22	3.5	3
13	79	1.20	.86	+ .21	+ 24	1.3	+17	19	9	4.5	3.5
14	132	1.21	.83	− .32	− 29	1.9	−27	25	23	5	5
15	77	1.21	.81	+ .23	+ 24	1.9	+23	25	22	4.5	4.5
16	+ 135	+1.22	+0.80	−0.35	− 33	1.8	−30	24	22	4.5	4
							+ 2				
17	+ 142	+1.48	−0.66	−0.42	− 62	1.8	−56	25	22	5	3.5
18	154	1.49	.67	− .54	− 73	0.5	−18	15	5	4.5	4.5
19	113	1.50	.71	− .13	− 33	1.8	−30	25	22	5	3.5
20	6	1.50	.72	+ .94	+ 75	1.8	+68	25	18	4.5	4
21	34	1.50	.73	+ .66	+ 46	1.4	+32	25	21	2.5	2
22	67	1.51	.77	+ .33	+ 13	1.9	+12	22	22	4.5	4.5
23	101	1.52	.79	− .01	− 23	1.9	−22	25	24	4.5	4.5
24	90	1.53	.82	+ .10	− 12	2.0	−12	25	25	5	5
25	+ 58	+1.53	−0.83	+0.42	+ 19	1.9	+18	25	19	5	5
							− 1				

Assumed $D\alpha$ 1895.0 $= +57^s.100$ $\quad d.D\alpha = +0^s.003$ $\quad p_z = 21.24$

$x = + 0.034$ $\quad d.D\mu = -0.010$ $\quad [pmn.3] = 0.1218$

$y = - 0.096$ $\quad [pvv] = 0.1204$

$z = + 0.128$ $\quad \pi = +0''.05 \pm 0''.045$ $\quad r = \pm 0^s.025$

TABLE VII (Continued).

STARS 185, **186**, 187.

No.	Date.	c_1'	c_2'	DT	${}_1C.c_1'$	$\Delta_2C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*	—128*s*						
1	'94, Feb. 20.7	—14.60	—23.39	— 26	+169	—168	+12	—1	—26	—130
2	21	5.60	5.60	28	65	40	9	1	25	130
3	25	0.08	0.08	53	1	1	8	1	25	128
4	27	.08	.08	0	1	0	7	0	24	127
5	Mar. 1	.08	.08	0	1	1	8	1	24	126
6	12	0.04	0.04	67	0	0	3	1	21	122
	13.6	— 5.56	— 5.56	— 21	+ 64	— 40	+ 4	—1	—21	—122
8	94 June 22.4	— 5.56	— 5.56	—112	+ 64	— 40	+ 3	—1	+ 3	— 79
9	24	1.81	1.81	43	21	13	4	1	3	78
10	26	12.85	12.85	197	149	92	4	1	3	78
11	29	0.04	0.04	86	0	0	4	0	3	76
12	30	0.04	0.04	102	0	0	4	1	3	76
13	July 1	0.04	0.04	91	0	0	5	1	4	76
14	2	7.26	7.26	145	84	52	7	1	4	75
15	3	29.09	0.04	424	337	0	7	0	4	75
16	6	6.01	0.04	166	70	0	8	1	4	74
17	10	27.40	27.40	181	318	197	7	1	4	72
18	11.3	5.56	5.56	184	64	40	7	1	5	72
19	13	1.77	1.77	72	21	13	9	0	5	71
20	14	— 9.09	— 7.31	—146	+105	— 53	+10	—1	+ 5	— 70
21	95 Feb. 14.7	— 7.22	0.00	—255	+ 84	0	+ 8	—2	—13	+ 19
22	15	18.24	— 5.52	260	212	— 40	9	2	13	19
23	18	— 8.92	— 5.44	129	+103	— 39	9	2	12	20
24	21	+ 0.08	+ 0.08	144	— 1	+ 1	10	2	12	21
25	22	0.08	0.08	180	1	0	8	2	12	22
26	25	+ 0.08	+ 0.08	—163	— 1	+ 1	+ 9	—2	—11	+ 23

TABLE VII (Continued).

LALANDE 28607.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	-128^s			^{s}							
1	−170	−0.86	+0.99	+0.20	+12	1.0	+6	17	12	3.5	1
2	150	.86	.99	.00	−8	1.3	−5	22	22	3.5	2
3	199	.84	.98	+.49	+41	1.8	+37	25	25	4	4
4	143	.84	.97	−.07	−14	2.0	−14	25	25	4.5	4.5
5	143	.83	.97	−.07	−14	1.7	−12	25	25	3	3
6	208	.80	.90	+.58	+50	1.3	+32	25	25	2.5	1.5
7	−137	−0.80	+0.89	−0.13	−20	1.7	−17	22	22	4.5	4
							+4				
8	−162	−0.52	−0.57	+0.12	+4	1.9	+4	22	22	4.5	4.5
9	107	.52	.59	−.43	−52	1.4	−36	24	24	3	2
10	212	.51	.62	+.62	+53	1.2	+32	18	18	3	2
11	155	.50	.66	+.05	−4	1.5	−3	25	25	2	2.5
12	172	.50	.67	+.22	+12	1.7	+10	25	25	3.5	3.5
13	159	.50	.68	+.09	0	1.9	0	25	25	4.5	4
14	178	.50	.69	+.28	+21	1.5	+16	21	21	3	2.5
15	151	.49	.71	+.01	−9	1.3	−6	9	25	3	3
16	159	.49	.74	+.09	0	1.6	0	21	25	3	3
17	122	.47	.79	−.28	−37	1.0	−18	10	10	2.5	2.5
18	221	.47	.80	+.71	+61	1.5	+46	22	22	2.5	2.5
19	121	.47	.81	−.29	−38	1.4	−27	24	24	2.5	2
20	−150	−0.46	−0.82	0.00	−9	1.5	−7	20	21	4	3
							+1				
21	−159	+0.13	+1.00	+0.09	+7	1.6	+6	21	25	3.5	3
22	75	.13	1.00	−0.75	−75	1.5	−56	15	22	3	3
23	50	.14	1.00	−1.00	−101	1.7	−86	20	22	4.5	4
24	127	.14	0.99	−0.23	−25	1.7	−21	25	25	4	3.5
25	165	.15	0.99	+0.15	+14	1.7	+12	19	19	4.5	4.5
26	−144	+0.16	+0.98	−0.06	−7	2.0	−7	25	25	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
27	'95, Mar. 10.7	— 5.54	— 0.02	—266	+ 64	0	+10	—2	— 8	+ 29
28	15	5.54	5.54	242	64	— 40	8	2	7	31
29	16	0.02	12.83	104	0	92	8	2	7	32
30	17	5.54	5.54	212	64	40	8	2	7	32
31	18	0.02	0.02	193	0	0	8	2	7	32
32	21	— 5.54	— 5.54	—230	+ 64	— 40	+ 8	—2	— 6	+ 34
33	96 Feb. 7.8	— 0.12	— 0.12	—293	+ 1	— 1	—11	—4	— 1	+168
34	13.7	0.12	.12	311	1	1	12	3	0	170
35	16	0.12	.12	376	1	1	4	4	0	171
36	19	18.36	.12	552	213	1	4	3	+ 1	173
37	20	0.12	.12	271	1	1	6	4	1	173
38	24	1.89	.12	317	22	0	8	3	2	175
39	Mar. 1	0.12	.12	362	1	1	10	4	3	178
40	12	.12	.12	334	1	1	7	3	5	182
41	16	.12	.12	366	1	1	7	4	6	184
42	18	.12	.12	298	2	— 1	8	3	6	185
43	19	— 0.12	— 0.12	—307	+ 1	0	— 8	—4	+ 7	+185
44	96 June 29.4	— 0.12	— 0.12	—303	+ 1	— 1	—17	—2	+30	+228
45	30	5.64	5.64	418	65	41	17	3	30	228
46	July 1	0.12	0.12	348	1	1	17	2	30	229
47	5	.12	.12	362	1	1	17	3	30	230
48	7	.12	.12	374	1	1	17	2	30	231
49	10.3	.12	.12	472	2	0	17	3	31	232
50	11	.12	.12	445	1	1	17	2	31	233
51	16	.12	.12	307	1	1	17	3	31	235
52	17	— 0.12	— 0.12	—454	+ 2	— 1	—17	—2	+31	+235

1. Through light clouds. 18. Light clouds near. 19. Star 187, ff. 23. Comparison of the differences between the stars with respect to their transits on the individual threads, with observation 21, shows that the relative apparent displacement was systematic and occurred on star 186.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.27	7.52	7.82	6
5th	7.39	7.64	7.89	7

Normal Equations.

$$+140.58\,x + 57.86\,y + 30.77\,z + 1.51 = 0$$
$$+ 57.86\,x + 131.75\,y - 2.14\,z - 5.98 = 0$$
$$+ 30.77\,x - 2.14\,y + 102.80\,z - 1.16 = 0$$

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
27	— 173	+0.19	+0.91	+0.23	+ 21	1.7	+18	22	25	3.5	3.5
28	188	.20	.87	+ .38	+ 37	1.6	+30	22	22	3	3
29	165	.21	.87	+ .15	+ 14	1.6	+11	25	18	3.5	3
30	157	.21	.86	+ .07	+ 5	1.3	+ 3	22	22	3	2
31	162	.21	.85	+ .12	+ 11	1.7	+ 9	25	25	3	3
32	— 172	+0.22	+0.82	+0.22	+ 21	1.8	+19	22	22	4.5	4.5
							— 5				
33	— 141	+1.11	+0.99	—0.09	— 5	1.6	— 4	25	25	2.5	2.5
34	156	1.12	1.00	+ .06	+ 11	1.1	+ 6	25	25	2.5	0.5
35	213	1.13	1.00	+ .63	+ 68	1.2	+41	25	25	2	1
36	173	1.14	1.00	+ .23	+ 28	1.3	+18	15	25	3	2
37	107	1.14	1.00	— .43	— 38	1.7	—32	25	25	3.5	3
38	129	1.15	0.98	— .21	— 16	2.0	—16	24	25	5	5
39	195	1.17	.96	+ .45	+ 50	1.6	+40	25	25	2.5	2.5
40	157	1.20	.89	+ .07	+ 13	1.7	+11	25	25	3	3
41	187	1.21	.86	+ .37	+ 43	2.0	+43	25	25	5	5
42	117	1.21	.84	— .33	— 28	1.7	—24	25	25	3	3
43	— 126	+1.22	+0.83	—0.24	— 18	1.8	—16	25	25	3.5	3.5
							+ 6				
44	— 64	+1.50	—0.67	—0.86	— 82	1.8	—74	25	25	3.5	3.5
45	156	1.50	.68	+ .06	+ 10	1.6	+ 8	22	22	3.5	2.5
46	108	1.50	.69	— .42	— 38	2.0	—38	25	25	4.5	4.5
47	122	1.51	.73	— .28	— 24	1.7	—20	25	25	3.5	3.5
48	132	1.52	.76	— .18	— 14	2.0	—14	25	25	4.5	4.5
49	227	1.53	.79	+ .77	+ 81	1.9	+77	25	25	4.5	4
50	200	1.53	.80	+ .50	+ 54	1.8	+49	25	25	3.5	3
51	61	1.54	.85	— .89	— 86	1.8	—77	25	25	3.5	3.5
52	— 206	+1.54	—0.86	+0.56	+ 60	2.0	+60	25	25	4.5	4.5
							— 3				

34. Est'd mags.: 8.1, 7.9, 8.2. Clouds near. 46. Est'd mags.: 7.9, 7.9, 8.2. Through haze.
49. A comparison with observation 46, similar to that made in the case of observation 23, shows a similar result.

Assumed $D\alpha$ 1895.0 = —128^s.150 $d.D\alpha$ = —0^s.004 p_g = 94.03
x = — 0.044 $d.D\mu$ = +0.006 [pnn.3] = 0.2208
y = + 0.065 [pvv] = 0.2188
z = + 0.026 π = +0".02 ±0".085 r = ±0^s.023

Table VII (Continued).

STARS 188, 189, 190.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	0s						
1	'94, Feb. 1.8	— 5.52	—18.25	+ 700	— 47	+217	— 7	0	+ 9	+ 40
2	5	1.78	1.78	862	15	+ 21	2		9	40
3	7	0.01	— 0.01	819	0	0	2		9	40
4	20.7	4.76	+ 1.85	938	41	— 22	7		10	38
5	21	— 5.28	+12.60	1063	— 45	—150	6		10	38
6	25	+ 0.93	— 0.08	906	+ 8	+ 1	5		10	37
7	27	—12.89	—12.89	813	—111	+153	5		10	37
8	Mar. 1	0.08	+ 1.34	935	— 1	— 16	5		10	37
9	13.6	— 0.04	— 0.04	+ 946	0	0	— 2	0	+11	+ 35
10	94 June 26.4	— 0.04	— 0.04	+ 855	0	0	— 3	0	+10	+ 23
11	29	.04	.04	850	0	+ 1	3		10	22
12	30	.04	.04	894	0	0	3		10	22
13	July 1	.04	.04	952	— 1	+ 1	4		9	22
14	2	.04	.04	838	0	0	4		9	22
15	3	.04	— 0.04	848	0	0	4		9	22
16	6	.04	+ 1.72	848	0	— 20	5		8	21
17	10	.04	— 0.04	815	1	0	5		8	21
18	11	.04	.04	889	0	0	5		8	21
19	13.3	.09	— .09	889	1	+ 1	6		8	20
20	14	0.09	+ 0.66	881	1	— 8	6		8	20
21	16	1.77	— 3.69	822	15	+ 44	6		8	20
22	20	0.09	+ 1.60	955	1	— 19	6		8	20
23	21	— 0.09	— 0.09	+ 883	— 1	+ 1	— 6	0	+ 8	+ 19
24	95 Feb. 14.8	— 5.52	0.00	+1018	— 47	0	— 5	0	0	— 5
25	18	+ 0.08	— 1.69	898	+ 1	+ 20	6		0	6
26	21.7	+ 0.08	+ 0.08	978	+ 1	— 1	6		0	6
27	22	—12.73	+ 0.08	+1081	—109	— 1	— 5	0	0	— 6

TABLE VII (Continued).

γ SERPENTIS.

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	0s			s							
1	+ 886	—0.91	+0.96	+0.34	+ 36	0.9	+16	22	15	1	1
2	915	.90	0.98	+ .05	+ 8	1.4	+ 6	24	24	3	2
3	866	.89	0.98	+ .54	+ 57	1.7	+48	25	25	4.5	3
4	916	.86	1.00	+ .04	+ 7	1.2	+ 4	19	19	4	2
5	910	.86	1.00	+ .10	+ 14	1.2	+ 8	21	12	3	2.5
6	957	.84	0.99	— .37	— 33	2.0	—33	24	25	5	5
7	897	.84	.98	+ .23	+ 27	1.7	+23	18	18	4.5	4.5
8	960	.83	.98	— .40	— 37	1.4	—26	25	23	2	2
9	+ 990	—0.80	+0.91	—0.70	— 67	1.7	—57	25	25	3.5	3
							— 1				
10	+ 885	—0.51	—0.57	+0.35	+ 17	1.7	+14	25	25	3.5	3
11	880	.50	.62	+ .40	+ 20	1.7	+17	25	25	3.5	3
12	923	.50	.63	— .03	— 22	1.7	—19	25	25	3.5	3
13	979	.50	.64	— .59	— 78	1.6	—62	25	25	3	2.5
14	865	.50	.66	+ .55	+ 36	1.7	+31	25	25	3	3
15	875	.49	.67	+ .45	+ 25	1.7	+21	25	25	3	3
16	852	.49	.71	+ .68	+ 48	1.2	+29	25	23	2.5	1
17	838	.47	.76	+ .82	+ 61	1.7	+52	25	25	4	3
18	913	.47	.77	+ .07	— 14	1.7	—12	25	25	3	3
19	911	.47	.78	+ .09	— 13	1.5	—10	25	25	3	2
20	894	.46	.79	+ .26	+ 6	1.6	+ 5	25	22	4	3
21	873	.46	.81	+ .47	+ 27	1.8	+24	24	23	4.5	4
22	957	.45	.85	— .37	— 58	1.3	—38	25	24	2.5	1.5
23	+ 904	—0.45	—0.86	+0.16	— 6	2.0	— 6	25	25	4.5	5
							+ 3				
24	+ 961	+0.13	+1.00	—0.41	— 30	1.9	—28	22	25	4.5	4.5
25	907	.14	1.00	+ .13	+ 24	1.2	+14	25	24	1	1
26	966	.14	1.00	— .46	— 35	1.7	—30	25	25	3.5	3.5
27	+ 960	+0.15	+1.00	—0.40	— 30	1.9	—28	18	25	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT'	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
28	'95, Feb. 25.7	+ 0.08	+ 0.08	+ 958	+ 1	− 1	− 6	0	0	− 7
29	Mar. 6	− 0.02	− .02	939	0	0	6		+ 1	8
30	10	18.26	.02	1171	−157	0	6		1	9
31	16	0.02	0.02	965	0	0	5		1	9
32	17	1.11	1.11	957	− 10	+ 13	5		1	9
33	18	0.02	0.02	922	0	0	5		1	10
34	20.6	0.02	0.02	890	0	0	5		1	10
35	21	0.02	3.62	866	0	43	5		1	10
36	27	− 2.22	− 2.22	+ 928	− 19	+ 26	− 1	0	+ 1	− 11
37	96 Feb. 7.8	− 0.12	− 0.12	+1002	− 1	+ 1	+ 7	0	−11	− 49
38	16	18.15	.12	1150	156	2	3	0	11	50
39	20.7	0.12	.12	986	1	1	4	0	11	50
40	21	0.12	.12	975	1	2	4	0	11	51
41	24	0.12	.12	979	1	1	5	0	11	51
42	Mar. 13	5.64	0.12	1018	49	1	5	+1	10	53
43	16	− 0.12	7.34	883	− 1	87	5	0	10	53
44	18	+ 1.15	0.91	903	+ 10	11	5	0	10	53
45	19	− 0.12	− 1 89	+ 968	− 1	+ 22	+ 5	0	−10	− 53
46	96 June 29.4	− 0.12	− 0.12	+ 997	− 1	+ 1	+11	0	−11	− 65
47	July 1	.12	0.12	1002	1	1	11		11	66
48	5	.12	18.34	818	1	218	11		11	66
49	7	.12	0.12	991	1	1	11		11	66
50	10	.12	.12	1037	1	2	11		12	67
51	11	.12	.12	986	1	1	11		12	67
52	16.3	.12	.12	1030	1	2	11		12	68
53	19	− 0.12	− 0.12	+ 927	− 1	+ 1	+11	0	−12	− 68

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
28	+ 945	+0.16	+0.99	—0.25	— 14	2 0	—14	25	25	5	5
29	926	.18	.96	— .06	+ 5	1.8	+ 4	25	25	3.5	3.5
30	1000	.19	.93	— .80	— 70	1.5	—52	15	25	3	3
31	952	.21	.89	— .32	— 22	1.7	—19	25	25	3.5	3
32	947	.21	.88	— .27	— 16	1.9	—15	24	24	4.5	4.5
33	908	.21	.87	+ .12	+ 22	1.7	+19	25	25	3	3
34	876	.22	.86	+ .44	+ 54	1.8	+49	25	25	3	4
35	895	.22	.85	+ .25	+ 34	2.0	+34	25	23	5	5
36	+ 924	+0.24	+0.79	—0.04	+ 5	1.6	+ 4 — 5	23	23	3	3
37	+ 949	+1.11	+0.98	—0.29	— 11	1.3	— 7	25	25	3	1.5
38	938	1.13	1.00	— .18	0	1.1	0	10	25	2	1
39	929	1.14	1.00	— .09	+ 9	1.7	+ 8	25	25	4	3
40	918	1.14	1.00	+ .02	+ 21	1.6	+17	25	25	3.5	2.5
41	922	1.15	0.99	— .02	+ 17	2.0	+17	25	25	4.5	5
42	913	1.20	.91	+ .07	+ 25	1.6	+20	22	25	3	3
43	911	1.21	.88	+ .09	+ 26	1.8	+23	25	21	4	4
44	866	1.21	.87	+ .54	+ 71	0.8	+28	24	23	1.5	0.5
45	+ 931	+1.22	+0.86	—0.11	+ 6	1 0	+ 3 +12	25	24	3	2
46	+ 932	+1.50	—0.63	—0.12	— 16	2.0	—16	25	25	5	4.5
47	936	1.50	.66	— .16	— 20	1.4	—14	25	25	2.5	2.5
48	943	1.51	.70	— .23	— 30	1.3	—20	25	13	3 5	2.5
49	925	1.52	.72	— .05	— 10	2.0	—10	25	25	5	4.5
50	970	1.53	.76	— .50	— 55	2.0	—55	25	25	5	5
51	918	1.53	.77	+ .02	— 4	2.0	— 4	25	25	4.5	4.5
52	962	1.54	.82	— .42	— 49	1.6	—39	25	25	2.5	2.5
53	+ 858	+1.55	—0.85	+ .62	+ 56	2.0	+56	25	25	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
54	'96, July 20,3	— 0.12	— 0.12	+ 934	— 1	+ 1	+11	0	—13	— 68
55	22	—29.17	— 1.21	+1215	—251	+14	+11	0	—13	— 69

1. Daylight illumination. Image of star 190 very unsteady and diffuse. Star 190 observed without screen; correction, —0s.026, to reduce DT to an observation with the screen is applied. 4. Light clouds. 8. Images breaking at times. 19. Stars 188 and 190, f. 20. Star 190, f. 25. These stars not observed, 1895, Feb. 15.8, on account of their extremely poor images.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	7.75	6.62	7.85	8	$+147.42\,x + 39.55\,y + 26.44\,z + 0.74 = 0$
5th	7.72	6.36	7.78	5	$+ 39.55\,x + 119.75\,y - 8.74\,z - 5.58 = 0$
					$+ 26.44\,x - 8.74\,y + 108.86\,z - 14.71 = 0$

STARS 191, 192, 193.

				+20s					
		s	s						
1	'95, Feb. 14.8	0.00	0.00	+522	0	0	0	0	+ 3
2	15	— .95	.00	505	+ 1			0	3
3	18.7	+ .08	+ .08	575	0			0	4
4	21	.08	.08	579	0			—1	4
5	22	.08	.08	553	0			0	4
6	25	+ .08	+ .08	501	0			0	4
7	Mar. 6	— .02	— .02	558	0			0	4
8	10	.02	.02	495	0			1	3
9	16	.02	.02	540	0			0	3
10	17	.02	.02	520	0			0	3
11	18	.02	.02	577	0			0	3
12	20	.02	.02	521	0			1	3
13	21	.02	.02	533	0			0	3
14	27	.02	.02	516	0			0	3
15	29	.02	.02	626	0			0	3
16	Apr. 1.6	— 0.02	— 0.02	+567	0	0	0	—1	+ 3

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
54	+ 864	+1.55	—0.86	+0.56	+ 50	1.4	+35	25	25	2.5	2
55	+ 907	+1.56	−0.88	+0.13	+ 6	1.0	+ 3	9	24	4	3
							− 6				

44. Images breaking badly, frequently invisible. Est'd mags.: 7.5, 6.2, 7.8. 45. Star 190, condition of image noted as 2 —0.5. 47. Through haze; est'd mags.: 8.2 to 8.5, 7.5, 8.5. 48. Some threads lost on star 190 on account of clouds; star observed in full brightness on half of the threads obtained but without screen throughout. Correction, —0s.026, to reduce DT to an observation with the screen was adopted and applied. 53. Clouds have been near. 54, 55. Daylight illumination. 54. Est'd mags.: 8.0, 6.5, 7.8. 55. Star 188, fff.

Assumed $D\alpha$ 1895.0 $= +0^s.920$ $d.D\alpha = -0^s.005$ $p_z = 101.82$

$x = -0.053$ $d.D\mu = +0.008$ $[pnn.3] = 0.1690$

$y = +0.075$ $[pvv] = 0.1700$

$z = +0.154$ $\pi = +0''.11 \pm 0''.028$ $r = \pm 0s.019$

τ CORONAE BOREALIS.

	+ 20s										
				s							
1	+ 525	+0.13	+0.99	+0.25	+ 19	1.8	+17	25	25	3.5	3.5
2	509	.13	0.99	+ .41	+ 35	1.0	+18	19	22	2	0.5
3	579	.14	1.00	— .29	— 35	1.7	—30	25	25	3	3
4	582	.14	1.00	— .32	— 38	1.9	—36	25	25	4.5	4
5	557	.15	1.00	— .07	— 13	1.8	—12	25	25	3.5	3.5
6	505	.16	1.00	+ .45	+ 39	1.9	+37	25	25	4	4.5
7	562	.18	0.97	— .12	— 18	2.0	—18	25	25	4.5	4.5
8	497	.19	.96	+ .53	+ 47	1.9	+45	25	25	4	4
9	543	.21	.92	+ .07	+ 1	1.9	+ 1	25	25	4	4
10	523	.21	.91	+ .27	+ 21	1.9	+20	25	25	4.5	4
11	580	.21	.91	— .30	— 36	1.5	—27	25	25	2.5	2
12	523	.22	.89	+ .27	+ 21	2.0	+21	25	25	4.5	5
13	536	.22	.88	+ .14	+ 8	2.0	+ 8	25	25	5	5
14	519	.24	.83	+ .31	+ 24	1.9	+23	25	25	4.5	4
15	629	.24	.81	— .79	— 86	1.4	—60	25	25	2.5	2
16	+ 569	+0.25	+0.78	—0.19	— 27	1.7	—23	25	25	3	3
							− 1				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
17	'96, Feb. 7.8	— 0.12	— 0.12	+ 498	0	0	0	—1	+ 5	
18	13	— 4.49	2.34	567	+ 4	— 2		0	5	
19	16	+ 0.39	0.12	517	0	0		1	5	
20	21.7	— 0.12	— 0.12	554	0	0		0	5	
21	24	+ 3.08	+27.70	523	— 3	+28		1	5	
22	Mar. 1	— 3.69	— 3.69	584	+ 3	— 4		0	5	
23	12	0.12	0.12	630	0	0		1	5	
24	16	12.93	.12	532	+12	0		0	4	
25	18	0.12	.12	548	0	0		—1	4	
26	19	— 0.12	— 0.12	+ 540	0	0	0	0	+ 4	
27	96 July 7.4	— 0.12	— 0.12	+ 564	0	0	0	0	0	
28	10	.12	.12	576				0		
29	11	.12	.12	528				—1		
30	17.3	.12	.12	532				0		
31	19	.12	.12	554				1		
32	20	.12	.12	495				0		
33	22	.12	.12	490				1		
34	24	.12	.12	580				0		
35	27	.12	.12	553				—1		
36	28	— 0.12	— 0.12	+ 505	0	0	0	0	0	

15. Comparison of the differences between the stars with respect to their transits on the individual threads, with observation 14, shows that the apparent relative displacement was systematic and occurred on star 192. 17. Daylight illumination; est'd mags.: 6.7, 6.7, 5.5. 18. Stars 191 and 192, images f, very diffuse; light clouds. 30. Light clouds. 35. Daylight illumination; est'd mags.: 8.2, 7.7, 6.2. 36. Daylight illumination; est'd mags.: 8.5, 7.7, 6.2.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
1st	7.60	7.35	5.85	2	$+110.54\,x + 94.16\,y + 34.97\,z + 6.86 = 0$
2d	7.75	7.60	6.08	5	$+ 94.16\,x + 123.84\,y - 17.62\,z + 6.52 = 0$
3d	7.69	7.34	5.96	8	$+ 34.97\,x - 17.62\,y + 88.43\,z - 1.98 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
17	+ 502	+1.11	+0.97	+0.48	+ 54	1.3	+35	25	25	2.5	1
18	574	1.12	0.99	−0.24	− 18	1.0	− 9	20	23	2.5	0
19	521	1.13	1.00	+ .29	+ 35	1.2	+21	24	25	2	1
20	559	1.14	1.00	− .09	− 2	1.7	− 2	25	25	4	3
21	552	1.15	1.00	− .02	+ 5	1.2	+ 3	19	4	5	5
22	588	1.17	0.99	− .38	− 31	1.0	−16	21	21	0.5	0
23	634	1.20	.94	− .84	− 78	1.4	−55	25	25	3	2
24	548	1.21	.91	+ .02	+ 8	1.9	+ 8	18	25	5	5
25	551	1.21	.90	− .01	+ 5	1.5	+ 4	25	25	2.5	2
26	+ 544	+1.22	+0.89	+0.06	+ 13	1.7	+11	25	25	4	3
							0				
27	+ 564	+1.52	−0.68	−0.14	− 25	2.0	−25	25	25	4.5	4.5
28	576	1.53	.72	− .26	− 37	2.0	−37	25	25	5	5
29	527	1.53	.73	+ .23	+ 12	2.0	+12	25	25	5	5
30	532	1.54	.80	+ .18	+ 6	2.0	+ 6	25	25	5	5
31	553	1.55	.82	− .03	− 15	2.0	−15	25	25	5	5
32	495	1.55	.83	+ .55	+ 43	1.8	+39	25	25	4.5	3.5
33	489	1.56	.85	+ .61	+ 49	2.0	+49	25	25	4.5	4.5
34	580	1.56	.86	− .30	− 42	2.0	−42	25	25	4.5	4.5
35	552	1.57	.88	− .02	− 15	2.0	−15	25	25	5	5
36	+ 505	+1.57	−0.89	+0.45	+ 32	2.0	+32	25	25	5	5
							0				

Assumed $D\alpha$ 1895.0 $= +20^s.550$ $\quad d.D\alpha = -0^s.021$ $\quad p_z = 25.80$

$x = -0.213$ $\quad d.D\mu = +0.013$ $\quad [pnn.3] = 0.1092$

$y = +0.128$ $\quad [pvv] = 0.1088$

$z = +0.132$ $\quad \pi = +0''.08 \pm 0''.047$ $\quad r = \pm 0^s.019$

	Stars 191 and 192.	Stars 192 and 193.
$d.\Delta\mu$	$+0^s.018$	$-0^s.005$
π	$+0''.16 \pm 0''.058$	$0''.00 \pm 0''.056$
r_1	$\pm 0''.15$	$\pm 0''.14$
	36 obs.	36 obs.

36 OB.

TABLE VII (Continued).

STARS 194, **195**, 196.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*	+ 55*s*						
1	'94, Feb. 20.8	+ 0.93	+ 0.93	+415	+ 1	− 2	+ 1	0	+ 4	− 51
2	21	− .08	+ 1.06	397	0	− 2	0	0	4	51
3	25.7	.08	− 0.08	418	0	0	0	0	4	50
4	27	.08	.08	379	0	0	1	+1	4	50
5	Mar. 1	.08	.08	373	0	0	0	0	4	49
6	13	.04	.04	401	0	0	0	0	4	48
7	28	.04	.04	459	0	0	+ 1	0	3	45
8	29	.04	.04	504	0	0	0	+1	3	45
9	Apr. 7.6	− 0.04	− 0.04	+450	0	0	0	0	+ 3	− 44
10	94 July 6.4	− 0.04	− 1.81	+451	0	+ 4	0	0	− 4	− 29
11	11	0.04	0.04	410	0	0	0	0	5	29
12	13	.09	0.09	380	0	0	0	0	5	28
13	14	.09	0.09	373	0	0	0	+1	5	28
14	16	.09	23.40	407	0	47	0	0	5	28
15	20	.09	0.09	351	0	0	0	0	5	27
16	21	0.09	.09	409	0	0	+ 1	0	5	27
17	23.3	5.61	.09	353	− 8	0	0	+1	5	27
18	25	0.09	0.09	446	0	0	1	0	5	26
19	26	.09	5.61	429	0	11	0	0	5	26
20	27	− .09	0.09	403	0	0	0	0	5	26
21	Aug. 2	+ .59	0.09	384	+ 1	0	1	+1	6	25
22	4	− .09	9.09	480	0	+18	0	0	6	25
23	6	− 0.09	− 0.09	+485	− 1	0	+ 1	0	− 6	− 25
24	95 Feb. 14.8	− 1.85	0.00	+413	− 3	0	+ 1	+1	+ 4	+ 7
25	15	−12.81	−12.81	306	−19	+26	0	1	4	7
26	18	+ 0.08	+ 0.08	+374	0	0	+ 1	+1	+ 5	+ 8

TABLE VII (Continued).

LALANDE 30044.

No.	$D\alpha$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 55^s			^{s}							
1	+ 368	−0.86	+0.99	+0.02	+ 3	1.2	+ 2	24	24	3	1
2	348	.86	1.00	+ .22	+ 23	1.0	+12	25	23	2.5	0.5
3	372	.84	1.00	− .02	− 1	2.0	− 1	25	25	5	5
4	335	.84	1.00	+ .35	+ 35	2.0	+35	25	25	5	5
5	328	.83	1.00	+ .42	+ 43	2.0	+43	25	25	5	4.5
6	357	.80	0.97	+ .13	+ 14	1.8	+13	25	25	3.5	4
7	418	.76	.87	− .48	− 46	1.3	−30	25	25	1.5	2
8	463	.76	.86	− .93	− 92	1.5	−69	25	25	1.5	3
9	+ 409	−0.73	+0.77	−0.39	− 36	1.6	−29	25	25	3	3
							− 3				
10	+ 422	−0.49	−0.60	−0.52	− 41	1.6	−33	25	24	3	3
11	376	.47	.67	− .06	+ 6	1.7	+ 5	25	25	3.5	3
12	347	.47	.68	+ .23	+ 34	1.6	+27	25	25	3	2.5
13	341	.46	.69	+ .29	+ 41	1.7	+35	25	25	3	3
14	421	.46	.72	− .51	− 38	1.2	−23	25	12	3	2.5
15	319	.45	.77	+ .51	+ 64	1.7	+54	25	25	4	3
16	378	.44	.78	− .08	+ 4	2.0	+ 4	25	25	4.5	4.5
17	314	.44	.80	+ .56	+ 69	2.0	+69	25	25	5	5
18	416	.43	.82	− .46	− 33	2.0	−33	25	25	4.5	4.5
19	409	.43	.83	− .39	− 25	1.6	−20	25	22	3.5	2.5
20	372	.43	.84	− .02	+ 11	2.0	+11	25	25	4.5	4.5
21	356	.41	.89	+ .14	+ 28	1.1	+15	24	25	0.5	0.5
22	467	.41	.91	− .97	− 83	1.8	−75	25	20	4.5	4.5
23	+ 454	−0.40	−0.91	−0.84	− 70	2.0	+70	25	25	5	5
							− 2				
24	+ 423	+0.13	+0.98	−0.53	− 59	1.4	−41	23	24	3.5	2
25	325	0.13	0.98	+0.45	+ 40	1.2	+24	18	18	3	2
26	+ 389	+0.14	+0.99	−0.19	− 24	1.4	−17	25	25	3	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
27	'95, Feb. 21.8	+ 0.08	+ 0.08	+334	0	0	0	+1	+ 5	+ 8
28	22	+ 0.08	+ .08	342	0	0	+ 1	1	5	8
29	25	—18.16	+ .08	425	—27	0	0	0	5	9
30	Mar. 6.7	9.02	— .02	339	—14	0	0	1	5	11
31	10	— 0.02	— .02	312	0	0	1	1	5	12
32	15	+ .66	+ 0.66	274	+ 1	— 1	0	1	5	12
33	16	— .02	— 5.54	283	0	+11	1	1	5	13
34	17	.02	0.02	345	0	0	0	1	5	13
35	18	.02	0.02	420	0	0	1	0	5	13
36	20	0.02	0.02	355	0	0	0	1	5	13
37	21	5.54	5.54	344	— 8	+11	+ 1	1	5	13
38	27	0.02	0.02	290	0	0	0	1	5	14
39	29	.02	.02	453	0	0	0	1	5	15
40	Apr. 1	.02	.02	346	0	0	0	+1	5	15
41	9.6	— 0.02	— 0.02	+465	0	0	0	0	+ 4	+ 17
42	95 July 29.3	— 0.02	— 0.02	+337	0	0	0	0	— 4	+ 34
43	30	0.02	.02	285	0	0	0	0	4	34
44	Aug. 1	19.85	.02	359	—30	0	0	+1	4	34
45	3	0.02	0.02	300	0	0	0	0	4	35
46	9	—25.26	—25.26	+373	—38	+51	— 1	0	— 4	+ 36
47	96 Feb. 16.8	— 5.64	— 5.64	+319	— 8	+11	0	+2	+ 6	+ 68
48	20	14.41	0.09	257	22	0	0	1	6	69
49	21	1.14	1.14	326	2	2	0	2	6	69
50	Mar. 1.7	0.12	0.12	302	0	0	— 1	1	6	70
51	12	0.12	0.12	310	0	0	0	2	6	72
52	13	1.26	1.26	225	— 2	+ 3	0	1	6	72
53	16	0.12	0.12	239	0	0	0	2	6	72
54	18	— 0.12	— 0.12	+247	0	0	0	+1	+ 6	+ 73

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
27	+ 348	+0.14	+1.00	+0.22	+ 17	1.7	+14	25	25	4	3
28	357	.15	1.00	+ .13	+ 7	1.9	+ 7	25	25	4.5	4
29	412	.16	1.00	− .42	− 47	1.7	−40	15	25	4.5	4.5
30	342	.18	0.99	+ .28	+ 23	1.7	+20	20	25	4	4
31	331	.19	.98	+ .39	+ 34	1.9	+32	25	25	4	4
32	292	.20	.96	+ .78	+ 72	1.0	+36	24	24	0.5	0.5
33	314	.21	.95	+ .56	+ 51	1.6	+41	25	22	2.5	3
34	364	.21	.95	+ .06	+ 2	1.9	+ 2	25	25	4.5	4
35	439	.21	.94	− .69	− 73	1.6	−58	25	25	2.5	2.5
36	374	.22	.93	− .04	− 9	1.8	− 8	25	25	4	4
37	367	.22	.92	+ .03	− 1	1.9	− 1	22	22	5	5
38	310	.24	.87	+0.60	+ 56	1.7	+48	25	25	3	2.5
39	474	.24	.86	−1.04	−108	1.3	−70	25	25	2	1
40	367	.25	.83	+0.03	− 3	1.7	− 3	25	25	3	3
41	+ 486	+0.27	+0.74	−1.16	−120	1.3	−78	25	25	2.5	1.5
							− 5				
42	+ 367	+0.58	−0.86	+0.03	+ 10	1.4	+ 7	25	25	3	2
43	315	.58	.87	+ .55	+ 62	1.9	+59	25	25	4.5	4
44	360	.59	.88	+ .10	+ 17	1.8	+15	14	25	5	5
45	331	.59	.90	+ .39	+ 46	2.0	+46	25	25	5	5
46	+ 417	+0.61	−0.93	−0.47	− 40	1.1	−22	11	11	5	4
							+21				
47	+ 398	+1.13	+0.98	−0.28	− 39	1.1	−21	22	22	2	0.5
48	311	1.14	0.99	+ .59	+ 48	1.5	+36	16	25	4	2.5
49	403	1.14	1.00	− .33	− 44	1.2	−26	24	24	3	1
50	378	1.17	1.00	− .08	− 20	1.6	−16	25	25	3.5	2.5
51	390	1.20	0.97	− .20	− 31	1.3	−20	25	25	2.5	1
52	305	1.20	.96	+ .65	+ 54	1.1	+30	23	23	2	0.5
53	319	1.21	.95	+ .51	+ 39	1.8	+35	25	25	4	3
54	+ 327	+1.21	+0.93	+ .43	+ 32	1.6	+26	25	25	2.5	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
55	'96, Mar. 19.7	— 5.64	— 0.12	+ 288	— 8	0	0	+2	+ 6	+ 73
56	23	— 0.12	— 0.12	+ 288	0	0	0	+1	+ 6	+ 74
57	96 July 19.4	— 0.12	— 0.12	+ 364	0	0	— 1	+1	— 2	+ 93
58	20	.12	.12	339	0	0	0	1	2	93
59	24.3	.12	.12	222	0	0	1	1	2	94
60	27	.12	.12	256	0	0	1	1	2	94
61	28	.12	.12	252	0	+ 1	1	1	2	95
62	29	.12	.12	293	0	0	1	1	2	95
63	30	0.12	0.12	260	— 1	0	0	1	2	95
64	Aug. 1	3.72	12.93	289	— 6	+26	1	1	2	95
65	3	0.12	0.12	297	0	0	1	1	2	96
66	4	— 0.12	— 0.12	+ 302	0	0	— 1	+1	— 2	+ 96

14. Light clouds. 22, 23. Daylight illumination. 23. Star 195, ff. 24, 25. Daylight illumination. 46. Daylight illumination; stars ff. 47. Daylight illumination. 48. Star 195. Threads D_4 and D_5 rejected, after comparison with mean of all the threads reduced to middle; abnormally long signals on these threads, as on some others also. This changes the value of $D\alpha$ by +0s.045. 63. Clouds; est'd mags.: 6.8, 8.0, 6.7. 64, 65, 66. Daylight illumination. 66. Est'd mags.: 7.6, 8.5, 6.0.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	6.65	7.65	5.85	2	$+179.81\,x + 53.29\,y + 16.35\,z - 2.24 = 0$
5th	6.51	7.61	5.90	8	$+ 53.29\,x + 137.47\,y - 19.01\,z + 5.03 = 0$
6th	6.75	7.71	5.94	8	$+ 16.35\,x - 19.01\,y + 143.05\,z + 9.50 = 0$

STARS 197, 198, 199.

				—59s					
		s	s						
1	'94, Feb. 27.8	— 7.36	— 7.36	—1073	+523	— 410	— 11	0	+16
2	Mar. 1.7	7.36	7.36	1170	523	410	13	0	16
3	12	7.32	12.85	826	520	716	4	0	19
4	13	7.32	23.35	236	520	1301	— 6	—1	20
5	Apr. 7.6	9.00	14.56	891	639	811	0	0	27
6	12	7.32	12.85	834	520	716	+ 2	0	28
7	25	— 7.32	—12.89	—1034	+520	— 718	+ 4	0	+31

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
55	+ 361	+1.22	+0.93	+0.09	— 02	1.4	— 1	22	25	3.5	2
56	+ 369	+1.23	+0.90	+0.01	— 10	1.9	—10	25	25	4	4
							+ 3				
57	+ 455	+1.55	—0.77	—0.85	— 85	1.7	—72	25	25	4	3
58	431	1.55	.78	— .61	— 61	1.6	—49	25	25	3.5	2.5
59	314	1.56	.81	+ .56	+ 56	1.8	+50	25	25	4	4
60	348	1.57	.84	+ .22	+ 22	2.0	+22	25	25	5	5
61	346	1.57	.85	+ .24	+ 25	1.9	+24	25	25	5	4
62	386	1.58	.86	— .16	— 15	2.0	—15	25	25	5	5
63	353	1.58	.87	+ .17	+ 18	1.7	+15	25	25	3	3
64	402	1.58	.88	— .32	— 32	1.3	—21	23	18	3	1.5
65	391	1.59	.90	— .21	— 21	1.7	—18	25	25	4.5	3.5
66	+ 396	+1.59	—0.91	—0.26	— 25	1.7	—21	25	25	4.5	3.5
							— 8				

Assumed $D\alpha$ 1895.0 $= +^s55.370$ $\quad d.D\alpha = +^s0.004$ $\quad p_z = 136.88$

$x = + 0.037$ $\quad d.D\mu = -0.006$ $\quad [pnn.3] = 0.3376$

$y = - 0.062$ $\quad [pvv] = 0.3856$

$z = - 0.079$ $\quad \pi = -0''.06 \pm 0''.032$ $\quad r = \pm 0^s.025$

	Obs. 1—41.	Obs. 42—66.
$d.D\alpha$	$+0^s.010$	$-0^s.048$
$d.D\mu$	$+0^s.004$	$+0^s.032$
π	$-0''.09 \pm 0''.047$	$-0''.05 \pm 0''.046$
r	$\pm 0^s.026$	$\pm 0''.021$

η HERCULIS.

	— 59^s			^{s}							
1	— 955	—0.84	+1.00	—0.95	— 49	1.5	—37	15	15	5	5
2	1054	.83	1.00	+ .04	+ 51	1.6	+41	15	15	5	5
3	1007	.80	0.98	— .43	+ 2	1.4	+ 1	15	18	4.5	3
4	1004	.80	.98	.46	0	1.3	0	15	12	3	4
5	1036	.73	.80	.14	+ 25	1.5	+19	14	17	4	4
6	1000	.72	.74	—0.50	— 12	1.5	— 9	15	18	4.5	4
7	—1197	—0.68	+0.57	+1.47	+179	1.0	+90	15	17	2.5	1
							+15				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
8	'94, July 10.4	— 7.32	— 7.32	—1215	+ 520	— 408	—11	0	+31	
9	13	7.37	7.37	1158	523	411	15	0	30	
10	14	12.77	18.33	901	907	1021	16	0	30	
11	16	9.05	14.61	859	643	814	15	—1	30	
12	20	7.37	7.37	1255	523	411	14	0	28	
13	21	7.37	7.37	1129	523	411	17	0	28	
14	23	7.37	7.37	1124	523	411	16	0	28	
15	25	5.39	6.01	1178	383	335	15	—1	28	
16	26.3	7.37	7.37	1220	523	411	14	0	27	
17	27	31.01	31.01	1514	2202	1727	12	0	27	
18	31	7.37	19.92	632	523	1110	15	0	26	
19	Aug. 2	7.37	12.90	890	523	719	17	—1	26	
20	4	7.37	12.90	890	523	719	21	0	25	
21	6	7.37	12.90	871	523	719	17	0	24	
22	8	—27.45	—25.33	—1663	+1949	—1411	—17	0	+24	
23	95 Feb. 22.7	— 5.84	—12.73	— 550	+ 415	— 709	—14	—1	—10	
24	Mar. 6	19.85	19.85	1285	1409	1106	14	1	5	
25	10	7.30	12.83	767	518	715	15	1	4	
26	15	7.30	12.83	759	518	715	13	1	3	
27	16	21.53	21.53	1289	1529	1199	12	1	3	
28	17	7.30	7.30	1078	518	407	13	1	2	
29	18	7.30	12.83	757	518	715	12	1	2	
30	20	7.30	12.83	749	518	715	12	1	2	
31	21	7.30	12.83	869	518	715	12	1	— 1	
32	27	7.30	12.83	736	518	715	— 1	1	+ 1	
33	29	7.30	12.83	888	518	715	+ 1	1	1	
34	Apr. 1	14.22	27.38	623	1010	1525	1	—1	2	
35	4	7.30	12.83	914	518	715	6	0	3	
36	9.6	— 7.30	—12.83	— 831	+ 518	— 715	+ 8	0	+ 4	

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
8	—1083	—0.47	—0.62	+0.33	+ 22	1.3	+14	15	15	3	3
9	1031	.47	.64	— .19	— 32	1.3	—21	15	15	3	3
10	1001	.46	.66	— .49	— 62	1.3	—40	12	15	4	3.5
11	1016	.46	.68	— .34	— 49	1.5	—37	14	17	4.5	4.5
12	1129	.45	.73	+ .79	+ 64	1.4	+45	15	15	4	3
13	1006	.44	.74	— .44	— 60	1.6	—48	15	15	4.5	4.5
14	1000	.44	.77	— .50	— 67	1.6	—54	15	15	5	5
15	1118	.43	.79	+ .68	+ 49	1.6	+39	16	15	5	5
16	1095	.43	.80	+ .45	+ 27	1.4	+19	15	15	4	3
17	1024	.43	.81	−0.26	— 45	1.1	—25	8	8	4.5	4.5
18	1208	.42	.85	+1.58	+138	0.5	+34	15	14	3	1.5
19	1078	.41	.87	+0.28	+ 8	1.1	+ 4	15	18	2	2
20	1082	.41	.88	+ .32	+ 11	1.6	+ 9	15	18	5	5
21	1060	.40	.89	+ .10	— 12	1.6	—10	15	18	5	5
22	—1118	—0.40	—0.91	+0.68	+ 46	1.1	+25 — 3	10	11	3.5	3
23	— 869	+0.15	+0.99	—1.81	—136	0.7	—48	14	18	3	1
24	1002	.18	1.00	—0.48	— 2	1.5	— 2	14	14	4.5	4.5
25	984	.19	0.99	— .66	— 21	1.6	—17	15	18	4.5	4.5
26	973	.20	.97	— .77	— 32	1.4	—22	15	18	2.5	3
27	975	.21	.97	— .75	— 31	1.4	—22	13	13	4	4
28	983	.21	.96	— .67	— 22	1.6	—18	15	15	4.5	4.5
29	969	.21	.96	— .81	— 36	1.2	—22	15	18	3	2
30	961	.22	.95	— .89	— 45	1.6	—36	15	18	4.5	4.5
31	1080	.22	.94	+0.30	+ 73	1.6	+58	15	18	5	5
32	934	.24	.90	—1.16	— 74	1.6	—59	15	18	4.5	4.5
33	1084	.24	.88	+0.34	+ 75	1.4	+52	15	18	4	3
34	1136	.25	.86	+ .86	+127	0.8	+51	11	10	3.5	4
35	1102	.26	.83	+ .52	+ 92	1.2	+55	15	18	4.5	3.5
36	—1016	+0.27	+0.78	−0.34	+ 4	1.1	+ 2 — 2	15	18	3	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
37	'95, July 29.3	— 5.32	— 5.32	—1096	+ 378	— 296	+15	0	+ 3	
38	30	5.32	5.32	1154	378	296	12	0	3	
39	Aug. 1	18.26	18.26	1319	1296	1017	13	0	3	
40	3	6.92	6.08	1225	491	339	13	—1	+ 2	
41	8	7.30	7.30	1243	518	407	15	0	0	
42	9	7.30	7.30	1272	518	407	17	0	0	
43	10	5.32	10.87	901	378	605	16	—1	— 1	
44	12	— 5.32	—29.07	— 1	+ 378	—1619	+12	0	— 2	
45	96 Mar. 1.7	— 7.40	—10.67	— 863	+ 525	— 594	+15	—2	—31	
46	12	7.40	12.93	832	525	720	11	2	27	
47	13	7.40	12.93	767	525	720	11	2	27	
48	16	7.40	12.93	722	525	720	11	2	26	
49	18	— 7.40	12.93	716	+ 525	720	12	1	25	
50	19	+ 7.19	5.64	206	— 510	314	12	2	25	
51	23	7.19	5.64	154	510	314	13	2	24	
52	29	+ 7.19	5.64	252	— 510	314	19	2	22	
53	30	— 7.40	—12.93	— 843	+ 525	— 720	+19	—1	—22	

1. Daylight illumination. 18. Star 197, f; star 199, fff. 22. Daylight illumination.
23. Star 199, fff. 34. Clouds. 35. Est'd mags.: star 197, 8.3; star 199, 8.0.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.73	5.80	7.67	3
5th	7.56	6.24	7.64	5

Normal Equations.

$+99.91\,x + 11.70\,y + 16.52\,z - 15.34 = 0$

$+11.70\,x + 44.65\,y + 14.84\,z - 5.73 = 0$

$+16.52\,x + 14.84\,y + 77.34\,z - 29.26 = 0$

STARS 200, 201, 202.

		s	s	— 17s						
1	'94, Feb. 27.8	— 0.08	—12.90	— 262	0	+ 5	+14	0	—30	— 83
2	Mar. 1.7	0.05	0.05	221	0	0	16	0	30	83
3	12	— 0.04	— 0.04	— 150	0	0	+ 6	0	—29	— 80

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
37	— 996	+0.58	—0.83	—0.51	— 76	1.3	—49	16	16	3.5	2.5
38	1057	.58	.84	+ .07	— 14	1.5	—10	16	16	5	4
39	1024	.59	.86	— .26	— 49	1.6	—39	15	15	5	5
40	1059	.59	.87	+ .09	— 13	1.5	—10	12	14	5	5
41	1117	.60	.91	+ .67	+ 42	1.3	+27	15	15	4.5	3
42	1144	.61	.92	+ .94	+ 70	1.6	+56	15	15	5	4.5
43	1114	.61	.93	+0.64	+ 39	1.5	+29	16	19	5	4
44	—1232	+0.62	—0.93	+1.82	+157	0.7	+55 + 7	16	9	5	5
45	— 950	+1.17	+1.00	—1.00	— 57	0.7	—20	15	13	0.5	0
46	1045	1.20	0.98	—0.05	+ 38	1.3	+25	15	18	3	2
47	980	1.20	.97	—0.70	— 28	1.3	—18	15	18	3	2.5
48	934	1.21	.96	—1.16	— 73	1.5	—55	15	18	4.5	4.5
49	925	1.21	.95	—1.25	— 84	1.0	—42	15	18	2	0.5
50	1045	1.22	.95	—0.05	+ 37	1.5	+28	15	22	4.5	3
51	991	1.23	.92	—0.59	— 19	1.6	—15	15	22	5	4
52	1081	1.24	.87	+ .31	+ 70	1.5	+52	15	22	4	3
53	—1042	+1.25	+0.87	—0.08	+ 31	1.4	+22 — 3	15	18	4.5	3.5

41, 43, 44. Daylight illumination. 43. Est'd mags.: 8.3, 5.5?, 8.0. 44. Star 190, fff.

Assumed $D\alpha$ 1895.0 = —60^s.050 $d.D\alpha$ = +0^s.010 p_z = 70.77

x = + 0.096 $d.D\mu$ = —0.002 [pnn.3] = 0.2782

y = — 0.017 [pvv] = 0.2792

z = + 0.361 π = +0".21 ±0".035 r = ±0^s.025

LALANDE 30694.

	— 17^s										
				s							
1	— 356	—0.84	+1.00	—0.24	— 4	1.9	— 4	25	18	5	5
2	318	0.83	1.00	—0.62	— 42	2.0	—42	24	24	5	5
3	— 253	—0.80	+0.99	—1.27	—107	1.2	—64	25	25	2	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
4	'94, Mar. 13.7	— 5.56	— 0.04	— 330	+ 6	0	+ 8	0	—29	— 80
5	28	0.04	— 1.30	212	0	0	— 3		28	76
6	Apr. 7	12.85	+ 0.58	318	+ 13	0	0		27	73
7	12.6	0.04	— 0.04	212	0	0	3		27	72
8	24	0.04	0.04	249	0	0	5		26	63
9	25	— 0.04	— 5.56	— 309	0	+ 2	— 6	0	—25	— 63
10	94 July 10.4	— 0.04	— 3.17	— 278	0	+ 1	+15	0	—17	— 47
11	11	.04	0.04	334	0	0	13		17	47
12	13	.09	.09	293	0	0	19		17	46
13	14	0.09	.09	386	0	0	20		16	45
14	16	18.33	.09	266	+ 18	0	19		16	45
15	20	0.09	.09	303	0	0	18		16	44
16	21	.09	.09	331	0	0	22		16	44
17	23	.09	.09	364	0	0	21		16	44
18	25	.09	.09	361	0	0	19		15	43
19	26	.09	0.09	345	0	0	19		15	43
20	27	.09	5.61	288	0	+ 2	15		15	43
21	Aug. 2.3	0.09	0.09	343	0	0	22		15	41
22	4	1.86	.09	308	2	0	27		15	41
23	6	0.09	.09	343	0	0	22		14	40
24	8	5.61	.09	305	5	0	22		14	40
25	11	5.61	.09	394	6	0	22		14	39
26	16	—12.90	— 0.09	— 345	+ 13	0	+22	0	—14	— 38
27	95 Feb. 25.7	+ 0.08	+ 0.08	— 390	0	0	+17	0	0	+ 16
28	Mar. 6	— 0.02	— 0.02	340	0	0	19		+ 1	18
29	10	5.54	— 0.02	364	+ 6	0	19		1	19
30	15	0.02	+ 1.02	444	0	0	16		2	21
31	16	— 0.02	— 0.02	— 352	0	0	+16	0	+ 2	+ 21

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
4	— 425	—0.80	+0.98	+0.45	+ 65	1.8	+58	22	25	3.5	4
	319	.76	.91	— .61	— 41	1.2	—25	25	24	2	2
6	405	.73	.82	+ .25	+ 44	1.3	+28	18	24	3	2
7	314	.72	.77	— .66	— 47	2.0	—47	25	25	4.5	4
8	343	.69	.62	— .37	— 19	1.8	—17	25	25	3.5	3.5
9	— 401	—0.68	+0.60	+0.21	+ 39	1.2	+24	25	22	2.5	1
							—10				
10	— 326	—0.47	—0.59	—0.54	— 41	1.2	—25	25	22	3	1
11	385	.47	.60	+ .05	+ 18	1.9	+17	25	25	4	4
12	337	.47	.62	— .43	— 30	1.4	—21	25	25	3	2
13	427	.46	.63	+ .47	+ 59	1.7	+50	25	25	4	3.5
14	290	.46	.66	— .90	— 78	1.0	—39	15	25	4	3
15	345	.45	.71	— .35	— 23	1.6	—18	25	25	4	3
16	369	.44	.72	— .11	+ 1	2.0	+ 1	25	25	4.5	4.5
17	403	.44	.74	+ .23	+ 35	2.0	+35	25	25	4.5	4.5
18	400	.43	.77	+ .20	+ 32	1.9	+30	25	25	5	4
19	384	.43	.78	+ .04	+ 16	1.4	+11	25	25	3	2.5
20	329	.43	.79	— .51	— 39	1.8	—35	25	22	4.5	4.5
21	377	.41	.85	— .03	+ 9	1.3	+ 6	25	25	3	2.5
22	335	.41	.87	— .45	— 34	2.0	—34	24	25	5	5
23	375	.40	.87	— .05	+ 6	2.0	+ 6	25	25	4.5	4.5
24	332	.40	.89	— .48	— 37	1.3	—24	22	25	3.5	2
25	419	.39	.91	+ .39	+ 50	1.9	+48	22	25	5	5
26	— 362	—0.37	—0.95	—0.18	— 7	1.8	— 6	18	25	5	5
							0				
27	— 357	+0.15	+0.99	—0.23	— 5	2.0	— 5	25	25	5	4.5
28	302	.18	1.00	— .78	— 60	2.0	—60	25	25	4.5	4.5
29	319	.19	0.99	— .61	— 43	2.0	—43	22	25	5	4.5
30	405	.20	0.98	+ .25	+ 43	1.2	+26	25	22	2	1
31	— 313	+0.21	+0.97	—0.67	— 49	1.7	—42	25	25	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
32	'95, Mar. 17.7	— 0.02	— 0.02	— 375	0	0	+16	0	+ 2	+ 21
33	18	0.02	.02	453	0	0	16		2	21
34	20	5.54	.02	495	+ 5	0	16		2	22
35	21	0.02	.02	457	0	0	16		2	22
36	27	0.02	.02	378	0	0	+ 4		3	24
37	29	5.54	0.02	442	6	0	— 2		3	24
38	Apr. 4	0.02	14.54	432	0	+ 6	7		3	26
39	9.6	0.02	0.02	390	0	0	11		4	27
40	12	5.52	.02	433	+ 6	0	13		4	28
41	15	0.08	.08	416	0	0	13		4	29
42	16	— 0.08	— 0.08	— 406	0	0	—13	0	+ 4	+ 29
43	95 July 29.3	— 0.02	— 0.02	— 464	0	0	—18	0	+16	+ 58
44	30	0.02	0.02	408	0	0	16		16	58
45	Aug. 1	3.62	0.02	430	+ 4	0	18		16	59
46	3	9.12	8.21	427	+ 9	+ 3	18		16	59
47	8	0.02	0.02	444	0	0	20		16	60
48	9	.02	.02	405	0	0	22		16	60
49	10	.02	.02	395	0	0	20		17	61
50	12	— 0.02	— 0.02	— 424	0	0	—15	0	+17	+ 61
51	96 Mar. 1.8	— 4.45	+ 1.72	— 664	+ 4	— 1	—18	0	+32	+116
52	12.7	0.12	— 0.12	599	0	0	15		32	119
53	13	.12	.12	542	0	0	13		32	120
54	16	.12	.12	550	0	0	13		32	121
55	18	0.12	.12	419	0	0	14		32	121
56	19	5.90	.12	460	+ 6	0	15		33	121
57	22	0.12	.12	393	0	0	16		33	122
58	23	— 0.12	— 0.12	— 486	0	0	—16	0	+33	+123

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
32	— 336	+0.21	+0.97	—0.44	— 26	1.9	—24	25	25	4	4
33	414	.21	.97	+ .34	+ 52	1.7	+44	25	25	3.5	3
34	450	.22	.96	+ .70	+ 87	1.8	+78	22	25	4	4
35	417	.22	.95	+ .37	+ 54	2.0	+54	25	25	5	5
36	347	.24	.91	— .33	— 16	1.9	—15	25	25	4	4
37	411	.24	.90	+ .31	+ 48	1.7	+41	22	25	3	3
38	404	.26	.85	+ .24	+ 40	1.5	+30	25	17	3.5	3
39	370	.27	.80	— .10	+ 6	1.3	+ 4	25	25	3	2
40	408	.28	.77	+ .28	+ 44	1.7	+38	22	25	3	3
41	396	.29	.73	+ .16	+ 32	1.5	+24	25	25	3	2.5
42	— 386	+0.29	+0.72	+0.06	+ 22	1.5	+16	25	25	4.5	3.5
							+10				
43	— 408	+0.58	—0.81	+0.28	+ 38	1.7	+32	25	25	4	3
44	350	.58	.82	— .30	— 20	1.9	—19	25	25	4.5	4
45	369	.59	.84	— .11	— 1	2.0	— 1	25	25	5	5
46	358	.59	.86	— .22	— 12	1.7	—10	14	20	5	5
47	388	.60	.90	+ .08	+ 17	1.7	+14	25	25	4	3
48	351	.61	.91	— .29	— 20	2.0	—20	25	25	5	4.5
49	337	.61	.91	— .43	— 34	1.7	—29	25	25	4	3
50	— 361	+0.62	—0.92	—0.19	— 10	1.9	—10	25	25	5	4
							— 5				
51	— 481	+1.17	+1.00	+1.01	+116	1.0	+58	21	22	3.5	2.5
52	463	1.20	0.98	+0.83	+ 98	1.3	+64	25	25	2.5	2
53	403	1.20	.98	+0.23	+ 38	1.9	+36	25	25	4.5	4
54	410	1.21	.97	+0.30	+ 45	1.7	+38	25	25	4	3
55	280	1.21	.96	—1.00	— 85	1.8	—76	25	25	3.5	3.5
56	315	1.22	.96	—0.65	— 50	1.2	—30	21	24	3.5	2
57	254	1.22	.94	—1.26	—111	1.7	—94	25	25	2.5	3
58	— 346	+1.23	+0.93	—0.34	— 19	1.9	—18	25	25	4	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
59	'96, Mar. 29.7	— 0.12	— 0.12	— 558	0	0	—23	0	+34	+124
60	30	— 0.12	— 0.12	— 454	0	0	—23	0	+34	+125

1, 24, 26, 27, 49, 50. Daylight illumination. 5. Star 202, image breaking badly. 6. Star 200, f. 14. Light clouds were noted in the sky at $16^h\ 25^m$. 18, 26, 38, 41, 42. Star 202, ff. 42. Star 202, est'd mag., 8.3 or fainter. 51. Star 202, fff. The corresponding correction, +0s.050, is applied to *DT*.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	6.44	6.98	7.94	5
5th	6.62	6.84	7.91	9

Normal Equations.

$+173.78\,x + 19.74\,y + 29.06\,z - 25.34 = 0$

$+ 19.74\,x + 74.64\,y + 25.88\,z - 2.13 = 0$

$+ 29.06\,x + 25.88\,y + 132.88\,z - 8.80 = 0$

STARS 203, **204**, 205.

				+24s						
		s	s							
1	'94, Mar. 12.7	— 5.56	—19.87	+766	— 7	+ 4	— 3	0	+16	—100
2	13	5.56	0.04	839	7	0	— 4		16	99
3	28	5.56	12.85	867	7	3	+ 1		15	99
4	Apr. 7.7	12.85	6.69	853	15	1	0		15	90
5	12.6	0.04	0.04	821	0	0	1		14	88
6	23	0.21	5.56	819	0	1	2		13	85
7	24	0.04	10.76	867	0	2	3		13	85
8	25	—12.85	—12.85	+767	—15	+ 3	+ 3	0	+13	— 84
9	94 July 13.4	— 0.09	+ 0.35	+809	0	0	—10	0	+ 6	— 57
10	14	5.61	— 1.27	798	— 7	0	11		6	57
11	16	1.86	5.61	915	2	+ 1	11		6	56
12	20	5.61	7.31	843	7	1	10		6	55
13	23	6.64	9.14	821	8	2	11		6	54
14	26	0.09	9.93	726	0	2	10		6	53
15	27	— 5.61	— 8.19	+ 758	— 7	+ 2	— 8	0	+ 6	— 53

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}v'pv_1'$ *	m_1	m_2	Images.	
				s							
59	— 423	+1.24	+0.89	+0.43	+ 58	1.7	+50	25	25	3	3
60	— 318	+1.25	+0.88	−0.62	— 47	1.8	−42 — 1	25	25	4	3.5

Assumed $D\alpha$ 1895.0 = −17.380 s $d.D\alpha$ = +0.014 s p_z = 120.98

x = + 0.142 $d.D\mu$ = −0.002 $[pnn.3]$ = 0.3423

y = — 0.023 $[pvv]$ = 0.3388

z = + 0.040 π = +0″.03 ±0″.036 r = ±0s.026

	Obs. 1—42.	Obs. 27—60.
$d.D\alpha$	+0s.004	+0s.006
$d.\Delta\mu$	−0s.028	+0s.013
π	+0″.08 ±0″.013	−0″.01 ±0″.055
r	±0s.024	±0s.029

Stars 200 and 201. $d.\Delta\mu$ = −0s.006, π = 0″.00 ±0″.042, r_1 = ±0″.23; 60 obs.

LALANDE 31055.

	+ 24s			s							
1	+ 676	−0.80	+0.99	+0.54	+ 74	1.0	+37	22	14	2	2
2	745	.80	.99	— .15	+ 5	1.9	+ 5	22	25	4.5	4.5
3	780	.76	.93	— .50	— 31	1.2	−19	22	18	2	2
4	764	.73	.85	— .34	— 16	0.9	— 7	18	18	4	2
5	748	.72	.80	— .18	0	1.9	0	25	25	4.5	4
6	750	.69	.67	— .20	— 5	1.8	— 4	24	22	4	4
7	800	.69	.66	— .70	— 55	1.0	−28	25	16	2.5	2
8	+ 687	−0.68	+0.64	+0.43	+ 57	0.8	+22 + 1	18	18	3	3
9	+ 748	−0.47	−0.57	−0.18	— 22	1.0	−11	25	23	3	2
10	729	.46	.59	+0.01	— 3	1.6	— 2	22	24	4	3.5
11	853	.46	.62	−1.23	−128	0.5	−32	24	22	4	3
12	778	.45	.67	−0.48	— 54	1.5	−40	22	21	4	3
13	756	.44	.71	— .26	— 32	1.4	−22	21	19	4.5	4.5
14	671	.43	.74	+ .59	+ 52	1.0	+26	25	15	3	2.5
15	+ 698	−0.43	−0.75	+0.32	+ 25	1.8	+22	22	20	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
16	'94, Aug. 2.3	— 0.09	— 0.09	+ 774	0	0	—12	0	+ 5	— 51
17	4	5.61	22.05	793	— 7	+ 4	15		5	51
18	6	0.09	5.61	794	0	1	12		5	50
19	8	.09	24.96	755	0	5	12		5	49
20	11	.09	0.09	748	0	0	12		5	48
21	15	.09	10.70	708	0	+ 2	12		5	47
22	16	— 0.09	— 0.09	+ 800	0	0	—12	0	+ 5	— 47
23	95 Mar. 6.8	— 0.02	+ 0.99	+ 730	0	0	— 9	0	+ 1	+ 20
24	10.7	25.26	— 0.02	763	—30	0	9		0	24
25	15	12.83	0.02	831	15	0	8		0	25
26	16	19.85	5.54	811	24	+ 1	8		0	26
27	17	1.79	1.43	704	2	0	8		0	26
28	18	— 5.54	0.19	711	— 7	0	8		0	26
29	20	+ 0.57	5.90	693	+ 1	1	8		0	27
30	21	—18.26	15.72	591	—22	3	8		0	27
31	27	0.02	— 0.02	776	0	0	— 1		— 1	29
32	29	7.05	+ 0.01	702	8	0	+ 1		1	30
33	Apr. 9	5.54	+ .49	657	— 7	0	6		2	34
34	12.6	0.02	— .02	765	0	0	7		2	36
35	15	0.08	0.08	663	0	0	7		2	37
36	16	0.08	12.86	677	0	+ 3	7		2	37
37	17	— 0.08	— 1.34	+ 656	0	0	+ 7	0	— 2	+ 37
38	95 July 30.3	— 7.24	— 9.02	+ 640	— 9	+ 2	+ 7	0	—11	+ 72
39	Aug. 1	5.54	0.70	654	7	0	7		11	72
40	8	0.02	.02	619	0	0	9		11	75
41	9	5.54	.02	670	7	0	12		12	75
42	10	5.54	.02	646	— 7	0	10		12	75
43	12	0.02	0.02	623	0	0	7		12	76
44	15	— 0.02	—27.38	+ 657	0	+ 5	+ 7	0	—12	+ 77

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
16	+ 716	—0.41	—0.82	+0.14	+ 6	1.7	+ 5	25	25	3	3
17	729	.41	.84	+ .01	— 7	1.3	— 5	22	12	5	5
18	738	.40	.85	— .08	— 16	2.0	—16	25	22	4.5	4.5
19	704	.40	.87	+ .26	+ 17	0.8	+ 7	25	11	3	2.5
20	693	.39	.89	+ .37	+ 27	2.0	+27	25	25	5	5
21	656	.38	.92	+ .74	+ 64	0.7	+22	24	16	4	3
22	+ 746	—0.37	—0.93	—0.16	— 26	2.0	—26	25	25	5	5
							— 3				
23	+ 742	+0.18	+1.00	—0.12	+ 2	2.0	+ 2	25	24	4.5	4.5
24	748	.19	1.00	—0.18	— 4	1.7	— 3	11	25	5	4.5
25	833	.20	0.99	—1.03	— 89	0.7	—31	18	25	2.5	1
26	806	.21	.98	—0.76	— 62	1.4	—43	14	22	3	3
27	720	.21	.98	+ .10	+ 24	1.6	+19	24	23	3.5	3
28	722	.21	.98	+ .08	+ 22	1.6	+18	22	24	3.5	3
29	714	.22	.97	+0.16	+ 30	1.7	+26	24	21	4	4
30	591	.22	.97	+1.39	+153	0.7	+54	15	12	5	5
31	803	.24	.93	—0.73	— 61	1.8	—55	25	25	3.5	3.5
32	724	.24	.92	+ .06	+ 18	1.0	+ 9	21	16	3	3
33	688	.27	.83	+ .42	+ 53	1.3	+34	22	24	3.5	2.5
34	806	.28	.80	— .76	— 65	1.4	—46	25	25	3	2
35	705	.29	.77	+ .25	+ 35	1.4	+24	25	25	3	2.5
36	722	.29	.75	+ .08	+ 18	1.0	+ 9	25	13	4	3
37	+ 698	+0.30	+0.74	+0.32	+ 42	1.9	+40	25	24	4.5	4
							+ 4				
38	+ 701	+0.58	—0.79	+0.29	+ 15	1.6	+12	21	20	4.5	4
39	715	.59	.81	+ .15	0	1.9	0	22	24	5	5
40	691	.60	.87	+ .39	+ 23	1.4	+16	25	25	3	2
41	738	.61	.88	— .08	— 24	1.3	—16	22	25	5	4.5
42	712	.61	.89	+ .18	+ 2	1.6	+ 2	22	25	4	3
43	694	.62	.90	+ .36	+ 20	2.0	+20	25	25	5	5
44	+ 734	+0.62	—0.92	—0.04	— 20	1.6	—16	25	10	4.5	4.5
							+ 3				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT'	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	— 76s						
45	'96, Mar. 12.7	— 0.12	— 0.12	+ 580	0	0	+ 7	0	—16	+149
46	13	5.64	.12	664	— 7		7		17	149
47	16	5.64	.12	654	— 7		7		17	150
48	18	0.12	.12	544	0		7		17	151
49	19	.12	.12	606	0		8		17	151
50	22	.12	— .12	613	0		9		17	153
51	23	0.12	+ .39	531	0		10		17	153
52	29	18.36	— 0.12	620	—22		11		17	155
53	30	— 0.12	— 0.12	+ 596	0	0	+11	0	—18	+155

4. Star 205, fff, image diffuse. 6. Star 203 observed without screen on groups A, B, and C, ten threads, with screen I on the remaining threads; corresponding correction, —0s.005, applied to DT. 7. Images breaking; star 205, fff. 8. Star 205, ff, image diffuse.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	7.40	7.87	8.54	7	$+117.01\,x + 20.04\,y + 21.58\,z - 3.24 = 0$
5th	7.61	7.91	8.58	7	$+ 20.04\,x + 52.70\,y + 21.04\,z + 0.15 = 0$
					$+ 21.58\,x + 21.04\,y + 90.10\,z - 11.91 = 0$

STARS 206, 207, 209.

		s	s							
1	'94, Mar. 12.7	0.00	0.00	— 789	0	0	— 6	0	+19	—57
2	13	0.00	0.00	787	0	0	— 8	—1	19	57
3	Apr. 12	+ 3.89	+ 3.89	789	— 47	+ 81	+ 3	0	13	51
4	23.6	— 7.32	— 5.31	808	+ 89	—111	4	—1	11	49
5	24	—18.28	—18.28	642	+223	—380	5	0	11	48
6	25	+ 7.27	+ 7.27	900	— 89	+151	6	—1	11	48
7	26	— 7.32	— 7.32	— 822	+ 89	—152	+ 8	0	+11	—48
8	94 July 16.4	— 7.37	— 7.37	— 834	+ 90	—153	— 19	0	+12	—33
9	20	—19.92	—18.33	— 787	+243	—381	— 17	—1	+13	—32

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
45	+ 720	+1.20	+0.99	+0.10	+ 17	1.0	+ 9	25	25	2.5	1
46	796	1.20	.99	— .66	— 59	1.8	—53	22	25	4.5	4
47	787	1.21	.98	— .57	— 50	1.8	—45	22	25	5	4
48	685	1.21	.97	+ .45	+ 52	1.7	+44	25	25	4	3.5
49	748	1.22	.97	— .18	— 11	1.2	— 7	25	25	2.5	1
50	758	1.22	.96	— .28	— 21	1.3	—14	25	25	2	1.5
51	677	1.23	.95	+ .53	+ 60	1.6	+48	25	24	3	3
52	747	1.24	.91	— .17	— 11	1.2	— 7	15	25	2.5	2.5
53	+ 744	+1.25	+0.91	—0.14	— 8	1.7	— 6 — 3	25	25	3	3

9, 10, 15, 16, 18, 20. Star 205, ff. 13, 14, 17, 19, 21. Star 205, fff. 15. Star 205, one thread rejected. 21, 22. Daylight illumination. 21, 30. Star 204, ff. 23, 25, 26, 27, 28, 29, 31, 33, 35, 37. Star 205, ff. 29. Est'd mags.: 8.5, 8.0, 87. 30, 32, 45. Star 205, fff. 36. Stars 203, 204, ff; star 205, fff. Light clouds. 37. Est'd mags.: 7.6, 8.0, 8.5.

Assumed $D\alpha$ 1895.0 $= +21^s.730$ $d.D\alpha = +0^s.001$ $p_z = 80.02$

$x = + 0.012$ $d.D\mu = -0.006$ $[pnn.3] = 0.1450$

$y = - 0.065$ $[pvv] = 0.1448$

$z = + 0.144$ $\pi = +0''.11 \pm 0''.030$ $r = \pm 0^s.018$

Stars 203 and 204. $d.\Delta\mu = -0s.002$, $\pi = +0''.03 \pm 0''.044$, $r_1 = \pm 0''.19$; 53 obs.

36 OPHIUCHI, *prec.*

	— 76s										
				^{s}							
1	— 833	—0.80	+1.00	—0.57	— 17	0.9	— 8	11	11	3.5	1.5
2	834	.80	1.00	—0.56	— 16	1.1	— 9	11	11	5	3.5
3	790	.72	0.82	—1.00	— 68	1.4	—48	13	13	5	4
4	865	.69	.69	—0.25	0	1.3	0	15	16	3	3
5	831	.69	.68	— .59	— 35	1.4	—24	15	15	4	4
6	870	.68	.67	— .20	+ 5	1.0	+ 2	15	15	2.5	1
7	— 914	—0.68	+0.66	+0.24	+ 48	1.4	+34 — 8	15	15	4	3:5
8	— 937	—0.46	—0.59	+0.47	+ 7	1.0	+ 4	15	15	3	1
9	— 962	—0.45	—0.64	+0.72	+ 29	1.3	+19	14	15	2.5	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
10	'94, July 23.4	− 0.05	− 0.05	− 832	+ 1	− 1	−21	0	+13	− 31
11	26	+ 7.22	+ 7.22	959	− 88	+150	18	−1	14	31
12	27	1.99	1.99	866	24	41	15	0	14	31
13	Aug. 2.3	7.22	7.22	926	88	150	22	1	15	29
14	4	11.84	11.00	1040	144	229	27	0	15	29
15	6	7.22	7.22	965	88	150	22	1	15	29
16	8	7.22	12.75	1039	88	265	22	0	16	28
17	11	3.84	3.84	924	47	80	22	1	16	28
18	14	5.58	5.58	1071	68	116	22	0	16	27
19	16	11.00	11.00	969	134	229	22	−1	17	27
20	17	+ 7.22	+ 7.22	− 984	− 88	+150	−21	0	+17	− 26
21	95 Mar. 10.8	+ 0.02	+ 3.91	− 922	0	+ 81	−19	−1	−10	+ 13
22	16.7	+ 0.02	+ 0.02	768	0	0	16	1	12	15
23	17	− 5.32	− 5.32	894	+ 65	−111	16	1	12	15
24	18	+ 7.29	+ 7.29	904	− 89	+152	16	1	13	15
25	20	3.91	3.91	920	48	81	16	1	13	16
26	27	+ 3.91	+ 3.91	757	− 48	+ 81	− 2	1	15	17
27	Apr. 4	− 6.95	− 7.30	922	+ 85	−152	+ 7	1	17	19
28	9	+ 0.02	+ 3.91	954	0	+ 81	11	1	17	20
29	12	7.29	7.29	937	− 89	152	13	0	18	20
30	15	+12.76	12.76	1038	−156	265	13	1	18	21
31	16	− 2.09	2.00	1099	+ 25	42	13	0	18	21
32	17.6	+11.01	+11.01	− 953	−134	+229	+13	−1	−18	+ 21
33	95 July 29.4	−12.70	− 1.70	−1134	+155	− 35	+19	−1	−17	+ 41
34	30	+ 7.29	+ 7.29	1044	− 89	+152	16	0	17	41
35	Aug. 1	12.82	11.07	1007	156	230	17	1	17	41
36	3.3	5.65	5.65	1052	69	118	17	0	16	42
37	9	+ 5.65	+ 5.65	−1095	− 69	+118	+23	−1	−16	+ 43

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
10	— 871	—0.44	—0.68	—0.19	— 63	1.1	—35	11	11	2.5	3
11	933	.43	.72	+ .43	— 3	1.1	— 2	15	15	3	2
12	881	.43	.73	— .09	— 56	1.1	—31	12	12	3.5	2
13	901	.41	.80	+0.11	— 40	1.4	—28	15	15	4	3
14	996	.41	.82	+1.06	+ 54	1.4	+38	17	17	4	4
15	940	.40	.83	+0.50	— 2	1.3	— 1	15	15	3.5	3
16	896	.40	.85	+0.06	— 47	1.0	—24	15	18	2.5	1
17	926	.39	.88	+0.36	— 19	1.3	—12	13	13	4	4
18	1056	.38	.90	+1.66	+110	1.3	+72	14	14	3	3
19	907	.37	.91	+0.17	— 39	1.6	—31	17	17	4.5	4.5
20	— 952	—0.37	—0.92	+0.62	+ 5	1.5	+ 4 — 2	15	15	4.5	4
21	— 858	+0.19	+1.00	—0.32	+ 20	1.1	+11	11	13	4	3
22	782	.21	0.99	—1.08	— 55	1.0	—28	11	11	4	2
23	954	.21	.99	+0.64	+117	1.1	+64	16	16	3.5	2
24	856	.21	.98	—0.34	+ 18	1.3	+12	15	15	4.5	3
25	901	.22	.98	+0.11	+ 63	1.3	+41	13	13	5	3
26	725	.24	.95	—1.65	—114	1.3	—74	13	13	3.5	3
27	981	.26	.89	+0.91	+138	0.8	+55	14	15	4	2
28	860	.27	.85	— .30	+ 15	1.2	+ 9	11	13	4.5	3.5
29	859	.28	.82	— .31	+ 13	1.3	+ 8	15	15	3	3
30	914	.29	.79	+0.24	+ 67	1.1	+37	18	18	3	1
31	1016	.29	.78	+1.26	+168	0.7	+59	9	12	3.5	2
32	— 843	+0.30	+0.77	—0.47	— 5	1.3	— 3 +16	17	17	3	2.5
33	— 972	+0.58	—0.75	+0.82	+ 46	1.0	+23	12	18	3.5	2
34	941	.58	.76	+ .51	+ 15	1.4	+10	15	15	4.5	3.5
35	893	.59	.78	+ .03	— 34	1.7	—29	18	17	4.5	4.5
36	960	.59	.80	+0.70	+ 31	1.3	+20	14	14	4	3
37	— 997	+0.61	—0.86	+1.07	+ 66	1.2	+40	14	14	4	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
38	'95, Aug. 10.3	+ 7.29	+ 7.29	—1017	— 89	+152	+20	0	—15	+ 43
39	12	7.29	7.29	1024	89	152	15	—1	15	44
40	13	0.02	7.29	1139	0	152	15	0	15	44
41	15	7.29	7.29	994	89	152	15	1	15	44
42	17	+ 5.65	+ 5.65	—1054	— 69	+118	+15	—1	—14	+ 45
43	96 Mar. 1.8	—25.97	—21.63	— 816	+317	—450	+20	—2	—39	+ 83
44	12.7	+ 5.55	+ 5.55	924	— 68	+115	15	2	42	85
45	13	7.19	6.69	849	88	139	15	2	43	85
46	16	3.81	3.81	897	46	79	15	2	44	86
47	18	7.19	7.19	904	88	150	16	2	44	86
48	19	7.19	7.19	905	88	150	17	2	44	87
49	22	5.55	5.55	897	68	115	17	2	45	87
50	23	+ 7.19	+ 7.19	960	— 88	+150	17	2	45	87
51	29	— 0.08	— 0.08	1017	+ 1	— 2	25	2	46	89
52	30	+ 7.19	+ 7.19	— 955	— 88	+150	+25	—2	—47	+ 89

14. Star 206, ff; thick haze. 27, 31. Star 206, fff. 36. Haze and moonlight; star 209, est'd mag., 7.0. 42. Daylight illumination and haze. Est'd mags.: 7.8, 6.5, 7.5, 5.8. 43. Star 206, fff; daylight illumination.

Epoch.	Estimated Magnitudes.†				No. of Ests.
4th	7.18	6.50	7.05	5 90	4
5th	7.02	6.34	6.48	5.70	5

† Including star 208.

Normal Equations.

$+77.70\,x + 14.46\,y + 4.48\,z - 1.98 = 0$

$+14.46\,x + 36.23\,y + 12.18\,z - 10.55 = 0$

$+\ 4.48\,x + 12.18\,y + 57.86\,z - 32.16 = 0$

STARS 206, 208, 209.

				+ 28s						
		s	s							
1	'94, Mar. 12.7	— 3.37	— 3.37	+448	+ 43	— 68	— 5	0	+26	— 57
2	13	5.35	5.35	539	68	109	— 7		26	57
3	Apr. 12	10.78	16.36	575	137	332	+ 3		18	51
4	23.6	—21.79	—21.79	+467	+277	—442	+ 4	0	+16	— 49

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
38	— 906	+0.61	—0.87	+0.16	— 25	1.3	—16	15	15	3.5	3.5
39	918	.62	.88	+ .28	— 14	1.3	— 9	15	15	4	3
40	943	.62	.89	+ .53	+ 11	0.8	+ 4	11	15	3	0.5
41	888	.62	.91	— .02	— 45	1.4	—32	15	15	4.5	3.5
42	— 960	+0.63	—0.92	+0.70	+ 25	1.3	+16 + 3	14	14	4	3
43	— 887	+1.17	+0.99	—0.03	+ 62	0.7	+22	8	13	3	2
44	821	1.20	1.00	—0.69	— 4	0.9	— 2	14	14	2	1
45	743	1.20	0.99	—1.47	— 82	1.2	—49	15	14	4	2.5
46	809	1.21	.99	—0.81	— 16	1.3	—10	13	13	4.5	3
47	786	1.21	.98	—1.04	— 40	1.3	—26	15	15	4.5	3
48	785	1.22	.98	—1.05	— 41	1.3	—27	15	15	4	2.5
49	793	1.22	.97	—0.97	— 33	1.3	—21	14	14	4	3
50	841	1.23	.96	— .49	+ 14	1.3	+ 9	15	15	3.5	2.5
51	952	1.24	.93	+ .62	+123	0.9	+55	11	11	3	2
52	— 828	+1.25	+0.92	—0.62	0	1.3	0 — 5	15	15	4.5	3

Assumed $D\alpha$ 1895.0 $= -76^s.890$ $\quad d.D\alpha = -0^s.003$ $\quad p_z = 53.76$

$x = -0.029$ $\quad d.D\mu = +0.012$ $\quad [pnn.3] = 0.1964$

$y = +0.124$ $\quad [pvv] = 0.1976$

$z = +0.532$ $\quad \pi = +0''.36 \pm 0''.039$ $\quad r = \pm 0^s.021$

Stars 206 and 207. $d.\Delta\mu = +0^s.014$, $\pi = +0''.33 \pm 0''.059$, $r_1 = \pm 0''.21$; 52 obs.

BRADLEY 2179.

	+ 28^s										
				^{s}							
1	+ 387	—0.80	+1.00	—0.37	+ 8	0.9	+ 4	9	9	3.5	1.5
2	460	.80	1.00	—1.10	— 65	1.1	—36	8	8	5	3.5
3	350	.72	0.82	0.00	+ 38	1.4	+27	13	16	5	4
4	+ 273	—0.69	+0.69	+0.77	+110	0.9	+50	7	7	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
5	'94, Apr. 24.6	—27.40	—27.40	+ 628	+318	—556	+ 4	0	+16	— 48
6	25	12 63	12.63	472	160	256	5		15	48
7	26	—21.79	—27.40	+ 627	+277	—556	+ 7	0	+15	— 48
8	94 July 16.4	—25.28	—31.01	+ 576	+321	—630	—17	0	+ 3	— 33
9	20	29.14	29.14	635	370	592	16		3	32
10	23	12.77	18.33	616	162	372	19		3	31
11	26	5.40	12.77	582	69	259	16		3	31
12	27	9.05	14.61	553	115	297	14		3	31
13	Aug. 2.3	0.05	7.37	537	1	150	20		3	29
14	4	3.42	3.42	408	43	69	24		3	29
15	6	9.05	14.61	585	115	297	20		3	29
16	8	1.66	9.05	583	21	184	20		3	28
17	11	7.37	12.90	565	94	262	20		4	28
18	14	7.37	12.90	542	94	262	21		4	27
19	16	0.05	0.05	308	1	1	20		4	27
20	17	— 1.66	— 1.66	+ 450	+ 21	— 34	—20	0	+ 4	— 26
21	95 Mar. 10.8	— 1.59	— 1.59	+ 440	+ 20	— 32	—17	0	— 2	+ 14
22	16.7	3.35	3.35	462	43	68	15		3	15
23	17	12.70	18.26	598	161	371	15		4	15
24	18	3.35	10.76	521	43	218	15		4	15
25	20	—10.76	—16.34	619	137	332	15		4	16
26	27	+ 0.02	+ 0.02	400	0	0	— 2		6	17
27	Apr. 4	—20.61	—19.55	645	262	397	+ 6		9	19
28	9	— 7.30	12.83	374	93	260	10		10	20
29	12	+ 0.02	7.30	533	0	148	12		10	20
30	15.6	— 0.01	7.36	484	1	149	12		11	21
31	16	15.91	21.59	599	202	438	12		11	21
32	17	— 1.65	— 1.65	+ 474	+ 21	— 33	+13	0	—11	+ 21

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
5	+ 392	—0.69	+0.68	—0.42	— 9	1.1	— 5	10	10	4	4
6	348	0.68	0.67	+ .02	+ 35	0.8	+14	10	10	2.5	1
7	+ 322	—0.68	+0.66	+0.28	+ 60	1.1	+33	7	10	4	3.5
							+12				
8	+ 220	—0.46	—0.59	+1.30	+119	0.6	+36	5	8	3	1
9	368	.45	.64	— .18	— 31	0.9	—14	9	9	2.5	2
10	359	.44	.68	— .09	— 23	1.3	—15	12	15	2.5	3
11	348	.43	.72	+ .02	— 13	0.9	— 6	8	12	3	2
12	329	.43	.73	+ .21	+ 5	1.2	+ 3	14	17	3.5	2
13	342	.41	.80	+ .08	— 11	1.3	— 7	11	15	4	3
14	332	.41	.82	+ .18	— 1	1.1	— 1	9	9	4	4
15	357	.40	.83	— .07	— 27	1.4	—19	14	17	3.5	3
16	375	.40	.85	— .25	— 45	0.9	—20	10	14	2.5	1
17	353	.39	.88	— .03	— 24	1.5	—18	15	18	4	4
18	330	.38	.90	+ .20	— 2	1.4	— 1	15	18	3	3
19	265	.37	.91	+ .85	+ 63	1.3	+41	11	11	4.5	4.5
20	+ 395	—0.37	—0.92	—0.45	— 68	1.2	—40	10	10	4.5	4
							— 5				
21	+ 423	+0.19	+1.00	—0.73	— 42	1.1	—23	10	10	4	3
22	435	.21	0.99	— .85	— 54	0.9	—24	9	9	4	2
23	384	.21	.99	— .34	— 3	1.1	— 2	12	15	3.5	2
24	343	.21	.98	+ .07	+ 38	1.2	+22	9	13	4.5	3
25	421	.22	.98	— .71	— 40	1.3	—26	13	16	5	3
26	410	.24	.95	—0.60	— 30	1.1	—16	11	11	3.5	3
27	527	.26	.89	—1.77	—149	0.7	—52	7	8	4	2
28	227	.27	.85	+1.23	+148	1.3	+96	15	18	4.5	3.5
29	407	.28	.82	—0.57	— 33	1.2	—20	11	15	3	3
30	358	.29	.79	—0.08	+ 15	0.9	+ 7	11	15	3	1
31	385	.29	.78	—0.35	— 12	0.8	— 5	10	13	3.5	2
32	+ 485	+0.30	+0.77	—1.35	—112	1.0	—56	10	10	3	2.5
							— 8				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
33	'95, July 29.4	−14.22	−14.22	+ 308	+181	−289	+17	0	−26	+ 41
34	30	+ 0.02	+ 0.02	290	0	0	15		26	41
35	Aug. 1	+ 0.02	+ 0.02	287	0	0	16		26	41
36	3.3	− 8.98	−14.54	515	114	295	16		26	42
37	9	7.30	12.83	447	93	260	20		26	43
38	10	1.59	8.98	379	20	182	19		25	43
39	12	7.30	12.83	427	93	260	14		25	44
40	13	− 5.33	−12.70	466	68	258	14		25	44
41	15	+ 0.02	+ 0.02	337	0	0	14		25	44
42	17	− 8.98	−14.54	+ 407	+114	−295	+14	0	−25	+ 45
43	96 Mar. 1.8	−27.93	−29.17	+ 572	+355	−592	+18	+1	−29	+ 83
44	12.7	0.08	0.08	254	1	2	13	1	32	85
45	13	.08	7.59	515	1	154	13	1	32	85
46	16	.08	0.08	267	1	2	13	1	33	86
47	18	0.08	7.40	412	1	150	14	1	33	86
48	19	7.40	7.40	334	94	150	14	1	33	87
49	22	7.40	12.93	455	94	262	15	1	34	87
50	23	5.43	5.43	416	69	110	15	1	34	87
51	29	7.40	7.40	337	94	150	20	1	36	89
52	30	− 7.40	− 7.40	+ 374	+ 94	−150	+22	+1	−36	+ 89

For notes and estimated magnitudes see the next preceding solution.

Normal Equations.

$$+66.35\,x + 14.40\,y + 4.38\,z - 0.69 = 0$$
$$+14.40\,x + 31.99\,y + 12.12\,z + 0.11 = 0$$
$$+\ 4.38\,x + 12.12\,y + 50.53\,z - 14.76 = 0$$

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	ν/p	$\frac{1}{2}\nu/pv_1'$ *	m_1	m_2	Images.	
				s							
33	+ 232	+0.58	—0.75	+1.18	+ 88	1.0	+44	11	11	3.5	2
34	320	.58	.76	+0.30	0	1.1	0	11	11	4.5	3.5
35	318	.59	.78	+ .32	+ 1	1.3	+ 1	11	11	4.5	4.5
36	366	.59	.80	— .16	— 48	1.3	—31	14	17	4	3
37	317	.61	.86	+ .33	— 1	1.3	— 1	15	18	4	2.5
38	254	.61	.87	+ .96	+ 62	1.1	+34	10	14	3.5	3.5
39	293	.62	.88	+ .57	+ 23	1.3	+15	15	18	4	3
40	309	.62	.89	+ .41	+ 6	0.8	+ 2	8	12	3	0.5
41	370	.62	.91	— .20	— 55	1.1	—30	11	11	4.5	3.5
42	+ 260	+0.63	—0.92	+0.90	+ 54	1.4	+38	14	17	4	3
							+ 7				
43	+ 408	+1.17	+0.99	—0.58	— 40	0.7	—14	7	9	3	2
44	320	1.20	1.00	+ .30	+ 48	0.8	+19	11	11	2	1
45	429	1.20	0.99	— .79	— 61	1.1	—34	11	13	4	2.5
46	333	1.21	.99	+ .17	+ 35	1.1	+19	11	11	4.5	3
47	331	1.21	.98	+ .19	+ 37	1.3	+24	11	15	4.5	3
48	347	1.22	.98	+ .03	+ 21	1.3	+14	15	15	4	2.5
49	356	1.22	.97	— .06	+ 11	1.3	+ 7	15	15	4	3
50	444	1.23	.96	— .94	— 77	1.0	—38	8	8	3.5	2.5
51	355	1.24	.93	— .05	+ 10	1.2	+ 6	15	15	3	2
52	+ 394	+1.25	+0.92	—0.44	— 29	1.3	—19	15	15	4.5	3
							— 2				

Assumed $D\alpha$ 1895.0 = +28^s.350
x = + 0.018
y = — 0.134
z = + 0.322

$d.D\alpha$ = +0.002
$d.D\mu$ = —0.013

π = +0″.22 ±0

p_z = 45.92
[$pnn.3$] = 0.1673
pvv] = 0.1652
r = ±0^s.020

TABLE VII (Continued).

STARS 210, 211, 212.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	+63s						
1	'94, Mar. 12.7	—18.28	—12.85	+1653	—228	+297	— 4	0	+31	+ 13
2	28	6.81	28.87	1112	85	667	+ 2		34	12
3	29	0.04	1.81	1656	1	42	2		34	12
4	Apr. 7	0.04	12.85	1455	1	297	0		35	12
5	25.6	5.56	5.56	1570	70	128	5		36	11
6	May 3	— 0.04	— 5.56	+1536	— 1	+128	+ 3	0	+36	+ 11
7	94 July 25.4	— 0.17	—27.45	+1064	— 2	+634	—15	0	+20	+ 7
8	26	9.09	5.61	1667	114	129	15		20	7
9	Aug. 4.3	5.61	5.61	1630	70	129	23		17	7
10	16	0.09	5.61	1587	1	130	18		13	6
11	17	5.61	19.11	1244	70	441	18		12	6
12	23	5.61	34.54	943	70	798	18		10	6
13	24	— 0.09	—31.01	+ 949	— 1	+716	—16	0	+10	+ 6
14	95 Mar. 10.8	— 5.54	—25.26	+1147	— 70	+583	—16	+1	+ 5	— 3
15	16.7	5.54	5.54	1647	70	128	13	1	6	3
16	18	5.54	10.77	1559	69	249	—14	1	6	3
17	29	0.02	23.33	1147	0	539	+ 2	1	8	4
18	Apr. 4	5.54	12.83	1539	69	296	6	1	8	4
19	15	5.60	5.60	1677	70	129	11	0	10	5
20	17	— 5.60	— 7.30	+1651	— 70	+169	+11	+1	+10	— 5
21	95 July 29.4	— 9.02	— 6.96	+1612	—113	+161	+15	0	— 8	— 9
22	30	18.26	5.54	1845	228	128	14	0	8	9
23	Aug. 1	1.79	5.54	1581	22	128	15	0	9	9
24	10.3	—10.87	— 1.79	1857	—136	+ 41	17	+1	11	10
25	15	+ 5.50	+ 5.50	+1786	+ 69	—127	+13	0	—13	— 10

Table VII (Continued).

72 w Herculis.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 64^s			^{s}							
1	+ 762	—0.80	+1.00	—0.52	— 29	1.5	—22	15	18	4.5	4.5
2	742	.76	0.95	— .32	— 10	1.0	— 5	20	9	2	2
3	745	.76	.95	— .35	— 13	1.5	—10	25	24	1.5	2.5
4	798	.73	.88	— .88	— 68	1.7	—58	25	18	3.5	3.5
5	680	.68	.69	+ .30	+ 47	1.6	+38	22	22	3	2.5
6	+ 713	—0.66	+0.60	—0.03	+ 13	1.8	+12	25	22	4.5	4.5
							— 8				
7	+ 708	—0.43	−0.68	+0.02	— 4	1.4	— 3	24	10	4	3
8	694	.43	.68	+ .16	+ 9	1.6	+ 7	20	22	4	3
9	690	.41	.80	+ .20	+ 13	1.9	+12	22	22	5	5
10	717	.37	.90	— .07	— 16	2.0	—16	25	22	5	5
11	615	.37	.91	+ .95	+ 85	1.7	+72	22	13	5	5
12	669	.35	.95	+ .41	+ 29	1.0	+14	22	6	5	5
13	+ 664	—0.35	—0.95	+0.46	+ 35	1.2	+21	24	8	5	5
							+15				
14	+ 647	+0.19	+1.00	+0.63	+ 74	1.6	+59	22	11	5	5
15	696	.21	1.00	+ .14	+ 24	1.7	+20	22	22	4	4
16	729	.21	0.99	— .19	— 10	1.3	— 6	22	19	3	2
17	693	.24	.95	+ .17	+ 27	1.4	+19	25	12	4	3
18	777	.26	.91	— .67	— 58	1.7	—49	22	18	4.5	3.5
19	752	.29	.81	— .42	— 34	1.4	—24	22	22	3	2
20	+ 767	+0.30	+0.79	—0.57	— 52	1.6	—42	22	21	4	3
							— 3				
21	+ 658	+0.58	—0.73	+0.52	+ 34	1.6	+27	20	21	4	4
22	742	.58	.73	— .32	— 50	1.5	—38	15	22	5	5
23	684	.59	.76	+ .26	+ 7	1.9	+ 7	24	22	5	5
24	759	.61	.85	— .49	— 70	1.7	—60	19	24	5	4
25	+ 718	+0.62	—0.89	—0.08	— 29	1.8	—26	22	22	4.5	4
							—18				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
26	'96, Mar. 13.7	− 5.64	− 5.61	+1689	− 71	+130	+12	+2	−22	− 19
27	16	5.64	5.64	1598	71	130	12	2	21	19
28	19	10.97	5.64	1723	137	130	13	2	20	20
29	29	9.12	5.64	1727	114	130	20	2	19	20
30	30	9.12	7.34	1622	114	170	20	2	18	20
31	Apr. 13	0.12	27.48	1140	2	635	29	1	16	21
32	14	− 0.12	− 0.12	+1740	− 2	+ 3	+30	+1	−16	− 21

2, 3. Stars 211 and 212, f. 3. Star 211 varying in brightness. Clouds crossing the meridian.
7. Star 212, ff; thick haze. 12, 13, Daylight illumination; sky thick.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.40	8.05	8.00	2
5th	7.33	7.91	7.89	7

Normal Equations.

$+79.38\,x + 16.31\,y + 16.23\,z + 0.69 = 0$
$+16.31\,x + 41.99\,y + 13.00\,z + 3.40 = 0$
$+16.23\,x + 13.00\,y + 60.00\,z - 6.83 = 0$

STARS 213, 214, 215.

				−53s						
		s	s							
1	'94, Mar. 13.7	− 0.01	+ 7.19	−408	0	− 6	+ 2	0	−14	− 64
2	Apr. 12	0.01	− 5.56	405	0	+ 4	− 1	0	12	57
3	23.6	5.56	5.56	456	− 3	5	1	0	11	55
4	24	− 0.04	− 5.56	−337	0	+ 4	− 1	−1	−11	− 54
5	94 July 20.4	− 0.09	− 1.86	−492	0	+ 1	+ 6	0	− 2	− 36
6	27	.09	7.68	505	0	6	5	0	− 1	35
7	Aug. 2	.09	2.66	439	0	2	7	0	0	33
8	6.3	.09	0.09	449	0	0	7	−1	0	32
9	11	− 0.09	0.09	417	0	0	7	0	+ 1	31
10	14	+ 1.83	−15.92	−473	+ 1	+13	+ 7	0	+ 1	− 30
11	95 Mar. 17.7	− 0.02	−20.50	−498	0	+16	+ 5	−1	− 4	+ 17
12	20	1.79	0.02	474	− 1	0	5	1	3	18
13	27	− 0.02	− 0.73	−425	0	+ 1	+ 1	−1	− 3	+ 19

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
26	+ 721	+1.20	+1.00	−0.11	− 12	1.2	− 7	22	22	2	1
27	631	1.21	0.99	+ .79	+ 77	1.9	+73	22	22	5	5
28	691	1.22	.98	+ .19	+ 16	1.6	+13	19	22	4.5	3
29	726	1.24	.94	− .16	− 19	1.5	−14	20	22	2.5	2.5
30	662	1.25	.93	+ .48	+ 45	1.6	+36	20	21	4.3	3.5
31	766	1.22	.82	− .56	− 60	1.3	−39	25	10	3	2.5
32	+ 735	+1.29	+0.82	−0.25	− 29	1.6	−23	25	25	3.5	2.5
							+ 6				

12. Star 210, ff; star 212, fff. Star 212 observed 0′.80 too high in field. 13. Star 211, ff; star 212, fff. 16, 19. Star 212, ff. 18. Star 211, ff. 21. Star 212, image very diffuse.

Assumed $D\alpha$ 1895.0 $= +64^s.710$ $\quad d.D\alpha = -0^s.001$ $\quad p_z = 54.26$

$x = -0.013$ $\quad d.D\mu = -0.012$ $\quad [pnn.3] = 0.1465$

$y = -0.120$ $\quad [pvv] = 0.1448$

$z = +0.143$ $\quad \pi = +0''.09 \pm 0''.041$ $\quad r = \pm 0^s.024$

WEISSE-BESSEL XVII, 322.

	− 53^s			^{s}							
1	− 490	−0.80	+1.00	+0.22	+ 35	1.8	+32	25	21	4	4
2	471	.72	0.84	+ .03	+ 14	1.8	+13	25	22	4.5	4
3	521	.69	0.72	+ .53	+ 61	1.7	+52	22	22	4	4
4	− 400	−0.69	+0.71	−0.68	− 61	1.7	−52	25	22	3	3.5
							+11				
5	− 523	−0.45	−0.60	+0.55	+ 33	1.8	+30	25	24	4	4
6	530	.43	.69	+ .62	+ 38	1.7	+32	25	20	4.5	4.5
7	463	.41	.77	− .05	− 30	1.6	−24	25	22	3.5	3
8	475	.40	.80	+ .07	− 19	2.0	−19	25	25	4.5	4.5
9	440	.39	.85	− .28	− 55	2.0	−55	25	25	5	5
10	− 481	−0.38	−0.87	+0.13	− 14	1.0	− 7	20	10	4.5	4.5
							− 7				
11	− 465	+0.21	+0.99	−0.03	+ 23	1.0	+12	25	9	4	4
12	456	0.22	0.98	−0.12	+ 14	1.8	+13	24	25	4	4
13	− 408	+0.24	+0.96	−0.60	− 34	1.8	−31	23	25	4	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
14	'95, Apr. 9.7	— 0.02	— 1.45	— 382	0	+ 1	— 4	—1	— 2	+ 22
15	21.6	— 1.34	— 6.14	— 462	— 1	+ 5	— 5	0	— 1	+ 25
16	95 Aug. 3.4	— 0.02	— 5.54	— 573	0	+ 4	— 6	0	+10	+ 47
17	9.3	.02	0.02	547		0	7	—1	10	48
18	12	.02	0.02	517		0	5	0	11	49
19	13	— 0.02	— 0.02	— 590	0	0	— 5	—1	+11	+ 49
20	96 Mar. 18.7	— 0.12	— 0.12	— 534	0	0	— 5	—2	+ 7	+ 97
21	22	.12	.12	432			5	1	8	98
22	Apr. 3	.12	.12	561			8	2	8	101
23	4	.12	.12	551			7	1	8	101
24	5	— 0.12	— 0.21	— 565	0	0	— 7	—2	+ 8	+101
				25. Rejected Observation.						
25	95 Apr. 16.7	+ 0.43	— 5.88	— 672	0	+ 5	— 4	0	— 2	+ 24

1. Daylight illumination; star 215, ff. 2. Star 214, f, image diffuse; star 215 brighter than star 214. 4. Star 214, f. 5. Star 215, f. 6. Star 214 brighter than star 213. 8. Star 215, ff. 10. Star 215, fff. Clouds? 11. Star 215, fff.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
3d	7.90	7.85	——	2	$+69.51\,x + 14.72\,y + 10.67\,z - 3.77 = 0$
4th	8.05	7.70	8.60	4	$+14.72\,x + 40.50\,y + 12.91\,z - 8.30 = 0$
5th	7.80	7.62	8.32	5	$+10.67\,x + 12.91\,y + 50.81\,z - 14.01 = 0$

STARS 216, 217, 219.

				+ 19s						
		s	s							
1	'94, Mar. 13.7	+ 3.37	— 1.42	+1436	+ 393	+ 160	+ 3	0	—11	+30
2	28	5.48	+ 0.02	1415	638	— 2	— 1		12	29
3	29	+ 2.71	— 2.96	1409	+ 316	+ 334	1		12	29
4	Apr. 7	—14.24	—15.87	2136	—1659	+1793	0		12	28
5	12	+ 7.27	0.00	1294	+ 847	0	1		12	27
6	23.6	+ 5.48	+ 0.02	+1557	+ 638	— 2	— 1	0	—13	+26

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
14	— 366	+0.27	+0.87	—1.02	— 78	1.2	—47	25	20	3.5	2.5
15	— 439	+0.31	+0.74	—0.29	— 8	1.0	— 4	24	21	2.5	0
							—11				
16	— 518	+0.59	—0.77	+0.50	+ 38	1.9	+36	25	22	5	5
17	497	.61	.83	+ .29	+ 16	2.0	+16	25	25	5	4.5
18	462	.62	.86	— .06	— 20	2.0	—20	25	25	5	5
19	— 536	+0.62	—0.87	+0.68	+ 54	1.2	+32	25	20	2.5	1
							+16				
20	— 437	+1.21	+0.99	—0.31	+ 8	1.9	+ 8	25	25	4.5	4
21	332	1.22	.97	—1.36	— 97	1.8	—87	25	25	4	3
22	462	1.26	.91	—0.06	+ 32	1.8	+29	25	25	4.5	3
23	450	1.26	.90	—0.18	+ 20	1.9	+19	25	25	4	4
24	— 465	+1.26	+0.89	—0.03	+ 35	1.7	+30	25	24	3.5	2.5
							0				
				25. Rejected Observation.							
25	— 649	+0.29	+0.80	+1.81	+204			24	15	3	2

25. Transit of star 215 very broken, showing that the image must have been extremely faint or very poor. Comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 15, shows a large and systematic apparent displacement of star 215 in the present observation; the largest departure from the differences of observation 15 is $0^s.45$. Many thin clouds in the sky on this night.

Assumed $D\alpha$ 1895.0 $= -53^s.468$ $\quad d.D\alpha = -0^s.001$ $\quad p_z = 46.13$

$x = -0.011$ $\quad d.D\mu = +0.013$ $\quad [pnn.3] = 0.1148$

$y = +0.131$ $\quad [pvv] = 0.1152$

$z = +0.245$ $\quad \pi = +0''.18 \pm 0''.055$ $\quad r = \pm 0^s.025$

ν^1 DRACONIS.

	$+20^s$			^{s}							
1	+1011	—0.80	+1.00	+0.79	+101	1.1	+56	12	10	3	3
2	1067	.76	0.97	+0.23	+ 44	0.9	+20	10	8	2	2
3	1075	.76	.96	+0.15	+ 36	1.1	+20	11	9	3	3
4	1286	.73	.91	—1.96	—175	0.5	—44	11	10	4	3
5	1155	.73	.87	—0.65	— 45	1.4	—32	15	11	4.5	4
6	+1205	—0.69	+0.75	—1.15	— 95	1.1	—52	10	8	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s							
7	'94, Apr. 24.6	+ 5.28	+ 0.02	+1508	+ 615	— 2	— 2	0	—13	+ 26
8	25	7.89	0.49	1192	919	55	2		13	26
9	26	5.48	0.02	1475	638	2	3		13	26
10	May 3	5.28	0.02	1401	615	2	2		13	25
11	6	+ 5.45	+ 0.49	+1381	+ 635	— 55	— 1	0	—14	+ 25
12	94 July 27.4	— 6.33	—10.69	+1677	— 737	+1208	+ 6	0	—11	+ 16
13	Aug. 2	+ 5.23	0.03	1522	+ 609	3	8		10	15
14	4	— 4.47	9.98	1571	— 521	1128	10		10	15
15	6.3	+ 6.47	4.63	883	+ 754	523	8		10	15
16	11	5.43	— 0.03	1495	633	+ 3	8		9	14
17	16	8.76	+ 0.44	1093	1021	— 50	8		9	14
18	17	5.80	0.44	1512	676	50	8		9	14
19	20	6.76	+ 0.35	1280	788	— 40	7		8	13
20	23	7.55	— 3.36	819	887	+ 380	8		8	13
21	24	6.47	+ 0.35	1319	754	— 40	8		8	13
22	25	7.19	2.99	1729	838	338	8		8	13
23	Sept. 1	+ 6.47	+ 0.35	+1398	+ 754	— 40	+ 8	0	— 7	+ 12
24	95 Mar. 16.7	+ 4.59	+ 0.05	+1553	+ 535	— 6	+ 6	0	+ 3	— 8
25	17	6.54	.42	1256	762	48	6	0	3	8
26	18	7.72	.51	1239	899	58	6	0	3	9
27	20	9.97	.04	992	1162	5	6	+1	3	9
28	21	0.51	.51	1941	59	58	6	0	3	9
29	27	7.72	0.51	1414	899	58	+ 1	0	2	10
30	29	7.72	3.16	1584	899	357	— 1	0	2	10
31	Apr 4	5.47	0.51	1531	637	58	3	+1	2	10
32	9	7.72	0.51	1391	899	58	4	0	2	11
33	12	+ 7.72	+ 3.16	1641	+ 899	— 357	5	0	1	11
34	16	— 0.02	— 0.02	1893	— 2	+ 2	4	0	1	12
35	17	+10.22	+ 3.10	+1309	+1191	— 350	— 5	0	+ 1	— 12

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
7	+1132	—0.69	+0.74	—0.42	— 22	0.8	— 9	10	8	1	1
8	1067	.68	.73	+ .23	+ 43	1.3	+28	11	8	4.5	4.5
9	1121	.68	.72	.31	— 11	1.3	— 7	10	8	4.5	4.5
10	1024	.66	.64	+0.66	+ 85	1.3	+55	10	8	5	5
11	+ 971	—0.65	+0.60	+1.19	+138	1.1	+76	10	8	2.5	3
							+10				
12	+1159	—0.43	—0.67	—0.69	— 54	1.2	—32	11	9	4	4
13	1147	.41	.74	—0.57	— 42	1.1	—23	10	8	3	3
14	1193	.41	.77	—1.03	— 88	1.0	—44	6	8	5	5
15	1173	.40	.78	—0.83	— 68	1.2	—41	9	6	5	5
16	1144	.39	.83	— .54	— 39	1.2	—23	10	8	5	5
17	1077	.37	.87	+ .13	+ 27	1.3	+18	11	8	5	5
18	1151	.37	.88	— .61	— 47	1.2	—28	10	8	5	5
19	1040	.36	.91	+ .50	+ 64	1.3	+42	12	10	5	5
20	1092	.35	.93	— .02	+ 12	1.4	+ 8	13	8	5	5
21	1046	.35	.93	+0.44	+ 58	1.4	+41	13	10	5	5
22	1196	.35	.94	—1.06	— 92	1.1	—51	12	10	5	5
23	+1125	—0.33	—0.97	—0.35	— 21	1.4	—15	13	10	5	5
							—12				
24	+1083	+0.21	+1.00	+0.07	+ 13	1.0	+ 6	12	10	3	2
25	971	.21	1.00	+1.19	+125	1.1	+69	13	10	5	5
26	1080	.21	1.00	+0.10	+ 16	0.9	+ 7	11	8	3.5	1.5
27	1150	.22	0.99	—0.60	— 54	1.3	—35	12	8	5	5
28	942	.22	.99	+1.48	+154	0.7	+54	8	8	5	5
29	1248	.24	.97	—1.58	—152	1.2	—91	11	8	4	3
30	1117	.24	.96	—0.27	— 21	1.1	—12	11	9	4	3
31	1100	.26	.93	—0.10	— 4	1.2	— 2	10	8	4.5	4
32	1219	.27	.89	—1.29	—124	1.2	—74	11	8	4	3
33	1168	.28	.87	—0.78	— 73	1.2	—44	11	9	4.5	4.5
34	878	.29	.83	+2.12	+217	0.5	+54	8	8	4	4
35	+1134	+0.30	+0.82	—0.44	— 39	1.4	—27	12	9	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	${}_1C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
36	'95, Apr. 21.6	+ 5.99	— 4.46	+ 895	+698	+ 504	— 5	0	+ 1	— 12
37	23	7.66	+ 0.45	1284	892	— 51	5	+1	1	12
38	24	7.66	0.45	1268	892	51	5	0	1	12
39	26	+ 7.66	+ 0.45	+1266	+892	— 51	— 6	0	+ 1	— 12
40	95 July 29.4	+ 6.54	+ 0.42	+1453	+762	— 47	— 7	0	+ 3	— 22
41	30	6.54	.42	1461	762	48	5	0	3	22
42	Aug. 1	6.54	.42	1375	762	47	6	0	3	22
43	3	6.54	.42	1415	762	48	6	0	3	22
44	9.3	6.54	.42	1393	762	47	8	0	4	23
45	10	6.44	.42	1289	762	48	8	+1	4	23
46	12	6.54	.42	1345	762	48	6	0	4	23
47	13	6.54	.42	1372	762	47	5	0	4	23
48	15	6.54	.42	1343	762	48	5	0	5	24
49	17	+ 6.54	+ 0.42	+1440	+762	— 47	— 5	0	+ 5	— 24
50	96 Mar. 13.7	+ 6.82	+ 2.56	+1604	+795	— 289	— 5	0	+16	— 46
51	16	— 3.25	—10.07	1304	—379	+1138	6	+1	16	46
52	18	+ 6.44	+ 2.50	1726	+750	— 282	6	0	16	46
53	19	6.72	0.02	1329	783	2	6	1	16	46
54	22	6.44	0.32	1425	750	36	6	0	16	47
55	23	6.44	2.50	1637	750	283	6	1	16	47
56	29	6.44	0.32	1420	750	36	9	0	16	47
57	30	6.44	.32	1426	750	36	9	1	16	47
58	Apr. 3	6.44	.32	1383	750	36	9	0	16	48
59	4	6.44	.32	1292	750	36	8	+1	16	48
60	5	+ 6.44	+ 0.32	+1379	+750	— 36	— 8	0	+16	— 48

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
36	+1081	+0.31	+0.78	+0.09	+ 14	0.7	+ 5	9	6	3	1
37	1110	.31	.75	— .20	— 15	1.2	— 9	11	8	4	2.5
38	1093	.31	.74	— .03	+ 2	1.3	+ 1	11	8	5	3
39	+1090	+0.32	+0.73	0.00	+ 4	1.0	+ 2	11	8	2.5	2
							— 6				
40	+1142	+0.58	—0.69	—0.52	— 52	1.2	—31	13	10	4.5	3
41	1151	.58	.70	— .61	— 61	1.4	—43	13	10	5	5
42	1065	.59	.72	+ .25	+ 25	1.4	+18	13	10	5	5
43	1104	.59	.74	— .14	— 14	1.4	—10	13	10	5	5
44	1081	.61	.81	+0.09	+ 8	1.4	+ 6	13	10	5	4.5
45	977	.61	.82	+1.13	+112	1.3	+73	13	10	5	4
46	1034	.62	.84	+0.56	+ 55	1.4	+38	13	10	5	5
47	1063	.62	.85	+ .27	+ 26	1.3	+17	13	10	4.5	4
48	1033	.62	.87	+ .57	+ 56	1.2	+34	13	10	4.5	3
49	+1131	+0.63	—0.88	—0.41	— 42	1.3	—27	13	10	4	4
							+ 8				
50	+1075	+1.20	+1.00	+0.15	+ 4	1.2	+ 2	12	10	3.5	3
51	1028	1.21	1.00	+ .62	+ 51	1.2	+31	12	11	4.5	4
52	1158	1.21	0.99	— .68	— 79	1.1	—43	13	11	4	2.5
53	1075	1.22	.99	+ .15	+ 4	1.1	+ 2	12	9	4	3
54	1102	1.22	.98	— .12	— 23	1.2	—14	13	10	4.5	3.5
55	1068	1.23	.98	+ .22	+ 11	1.3	+ 7	13	11	5	3.5
56	1094	1.24	.96	— .04	— 15	1.4	—10	13	10	4.5	4.5
57	1101	1.25	.95	— .11	— 23	1.4	—16	13	10	5	4
58	1056	1.26	.93	+0.34	+ 22	1.4	+15	13	10	5	5
59	967	1.26	.92	+1.23	+111	1.3	+72	13	10	4	3
60	+1053	+1.26	+0.91	+0.37	+ 25	1.4	+18	13	10	4.5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*	+30*s*						
61	'96, Apr. 13.7	+ 6.44	+ 0.32	+1442	+750	− 36	−13	0	+15	− 49
62	14	+ 6.44	+ 0.32	+1420	+750	− 36	−13	+1	+15	− 49
		63, 64. Rejected Observations.								
63	94 Aug. 31.3	− 0.07	− 3.36	+1532	− 8	+380	+ 9	0	− 7	+ 12
64	96 Mar. 12.8	+ 0.32	+ 0.16	+1675	+ 37	− 18	− 6	+1	+17	− 46

20, 21. Star 216, f. 22. Thick haze. Star 216 observed with screen I; correction, −0*s*.046, to reduce to observation with screen II, is applied to *DT*. 24, 25. Daylight approaching; threads somewhat out of focus. 28. Sky thick; star 216, fff; stars 217 and 218, ff. 34. Star 216, ff. 50, 51. Daylight illumination in part. 55. Est'd mags.: 8.1, 7.8, 6.8, 7.0. 63. Daylight illumination. Star 216 observed with screen I; stars 217 and 218 without screen. Smoke from forest fires was making stars appear fainter by two magnitudes at this time. The observation was delayed and probably disturbed by experimenting with the screens. 64. Daylight illumination. Threads out of focus. Star 216 with screen I, star 217 without screen. Reject all.

Epoch.	Estimated Magnitudes.†				No. of Ests.
4th	8.07	7.57	7.57	6.27	3
5th	7.88	7.52	7.52	6.40	5

† Including star 218.

Normal Equations.

$$+89.41\,x + 24.93\,y + 17.23\,z - 3.92 = 0$$
$$+24.93\,x + 49.03\,y + 18.31\,z + 5.98 = 0$$
$$+17.23\,x + 18.31\,y + 67.38\,z + 0.65 = 0$$

STARS 216, 218, 219.

		s	*s*	+30*s*						
1	'94, Mar. 13.7	+ 3.63	− 1.58	+1160	+ 421	+ 179	+ 3	0	− 7	+ 30
2	28	5.48	+ 0.02	1259	636	− 2	− 1	0	8	29
3	29	+ 2.71	− 2.96	1224	+ 314	+ 336	1	0	8	29
4	Apr. 7	−14.24	15.87	1820	−1652	1801	0	0	8	28
5	12	+ 7.65	− 0.19	1108	+ 887	+ 22	1	0	8	27
6	23.6	5.48	+ 0.02	1271	636	− 2	1	+1	8	26
7	24	5.28	.02	1366	612	2	2	0	8	26
8	25	5.85	.49	1183	679	56	2	0	8	26
9	26	5.48	.02	1226	636	2	3	0	8	26
10	May 3	5.28	.02	1210	612	2	2	0	8	25
11	6	+ 5.45	+ 0.49	+1215	+ 632	− 56	− 1	+1	− 9	+ 25
12	94 July 27.4	− 6.33	−10.69	+1508	− 734	+1213	+ 5	0	− 9	+ 16
13	Aug. 2	+ 5.23	− 0.02	+1251	+ 607	+ 3	+ 8	0	− 9	+ 15

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
61	+1109	+1.28	+0.85	$-0^s.19$	− 31	1.3	−20	13	10	3.5	3.5
62	+1088	+1.29	+0.85	+0.02	− 10	1.0	− 5	13	10	2.5	2
							+ 3				
				63, 64. Rejected Observations.							
63	+ 918	−0.33	−0.97	+1.72	+198			6	8	3	3
64	+ 660	+1.20	+1.00	+4.30	+419			10	4	0.5	0

Assumed $D\alpha$ 1895.0 $= +21^s.090$ $d.D\alpha = +0^s.009$ $p_z = 59.72$

$x = +0.089$ $d.D\mu = -0.017$ $[pnn.3] = 0.3309$

$y = -0.173$ $[pvv] = 0.3288$

$z = +0.014$ $\pi = +0''.01 \pm 0''.028$ $r = \pm 0^s.025$

	Stars 216 and 217.	Stars 217 and 219.
$d.\Delta\mu$	$-0^s.016$	$-0^s.007$
π	$-0''.01 \pm 0''.036$	$+0''.04 \pm 0''.040$
r_1	$\pm 0''.14$	$\pm 0''.15$
	62 obs.	62 obs.

ν^2 DRACONIS.

	+ 31^s										
1	+ 786	−0.80	+1.00	$+0^s.94$	+133	1.1	+73	11	9	3	3
2	913	.76	0.97	−0.33	+ 5	0.9	+ 2	10	8	2	2
3	894	.76	.96	−0.14	+ 24	1.1	+13	11	9	3	3
4	989	.73	.91	−1.09	− 72	0.5	−18	11	10	4	3
5	1035	.72	.87	−1.55	−118	1.4	−83	14	10	4.5	4
6	923	.69	.75	−0.43	− 7	.1	− 4	10	8	3	3
7	992	.69	.74	−1.12	− 76	.8	−30	10	8	1	1
8	822	.68	.73	+0.58	+ 93	1.3	+60	10	8	4.5	4.5
9	875	.68	.72	+ .05	+ 40	1.3	+26	10	8	4.5	4.5
10	835	.66	.64	+ .45	+ 80	1.3	+52	10	8	5	5
11	+ 807	−0.65	+0.60	+0.73	+107	1.1	+59	10	8	2.5	3
							+14				
12	+ 999	−0.43	−0.67	−1.19	− 92	1.2	−55	11	9	4	4
13	+ 875	−0.41	−0.74	+0.05	+ 32	1.1	+18	10	8	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
14	'94, Aug. 4.4	− 2.06	− 9.98	+1024	− 239	+1133	+10	0	− 9	+ 15
15	6.3	+ 5.61	4.27	770	+ 651	485	8	0	9	15
16	11	5.43	− 0.03	1305	630	+ 3	8	0	9	14
17	16	11.40	+ 0.44	633	1322	− 50	8	+1	8	14
18	17	5.80	0.44	1330	673	50	8	0	8	14
19	20	6.76	+ 0.35	1048	784	− 40	7	0	8	13
20	23	10.06	− 3.36	372	1167	+ 381	8	0	8	13
21	24	5.10	+ 1.45	1341	592	− 165	8	0	8	13
22	25	6.90	+ 3.35	1542	800	380	8	+1	8	13
23	Sept. 1	+ 6.47	+ 0.35	+1260	+ 751	− 40	+ 8	0	− 7	+ 12
24	95 Mar. 16.7	+ 4.59	+ 0.05	+1301	+ 532	− 6	+ 6	0	+ 5	− 8
25	17	6.54	.42	1053	759	48	6	+1	5	8
26	18	7.72	.51	1135	896	58	6	0	5	9
27	20	9.97	.04	732	1157	5	6	1	5	9
28	21	0.51	.51	1921	59	58	6	0	5	9
29	27	7.72	0.51	1184	896	58	+ 1	1	5	10
30	29	7.72	3.16	1350	896	359	− 1	0	5	10
31	Apr. 4	5.47	0.51	1307	635	58	3	1	5	10
32	9	7.72	0.51	1213	896	58	4	0	4	11
33	12	+ 7.72	+ 3.16	1434	+ 896	− 359	5	0	4	11
34	16	− 0.02	− 0.02	1803	− 2	+ 2	4	0	4	12
35	17	+10.22	+ 3.10	1150	+1186	− 352	5	0	4	12
36	21.6	5.99	− 4.46	827	695	+ 506	5	1	4	12
37	23	7.66	+ 0.45	1026	889	− 51	5	0	4	12
38	24	7.66	0.45	1053	889	51	5	0	4	12
39	26	+ 7.66	+ 0.45	+1066	+ 889	− 51	− 6	+1	+ 4	− 12
40	95 July 29.4	+ 6.54	+ 0.42	+1196	+ 759	− 48	− 7	0	+ 3	− 22
41	30	+ 6.54	+ 0.42	+1199	+ 759	− 48	− 5	0	+ 3	− 22

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin(L–M)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
14	+ 934	—0.41	—0.77	—0.54	— 28	1.0	—14	7	8	5	5
15	920	.40	.78	— .40	— 14	1.2	— 8	10	7	5	5
16	951	.39	.83	— .71	— 45	1.2	—27	10	8	5	5
17	920	.37	.87	— .40	— 15	1.3	—10	12	8	5	5
18	967	.37	.88	— .87	— 62	1.2	—37	10	8	5	5
19	804	.36	.91	+ .76	+101	1.3	+66	12	10	5	5
20	933	.35	.93	— .53	— 28	1.4	—20	15	8	5	5
21	781	.35	.93	+ .99	+124	1.4	+87	13	11	5	5
22	930	.35	.94	—0.50	— 25	1.1	—14	14	12	5	5
23	+ 984	—0.33	—0.97	—1.04	— 80	1.4	—56	13	10	5	5
							— 6				
24	+ 830	+0.21	+1.00	+0.50	+ 56	1.0	+28	12	10	3	2
25	768	.21	1.00	+1.12	+118	1.1	+65	13	10	5	5
26	975	.21	1.00	—0.95	— 89	0.9	—40	11	8	3.5	1.5
27	887	.22	0.99	—0.07	— 1	1.3	— 1	12	8	5	5
28	924	.22	.99	—0.44	— 38	0.7	—13	8	8	5	5
29	1019	.24	.97	—1.39	—134	1.2	—80	11	8	4	3
30	881	.24	.96	—0.01	+ 3	1.1	+ 2	11	9	4	3
31	877	.26	.93	+0.03	+ 7	1.2	+ 4	10	8	4.5	4
32	1040	.27	.89	—1.60	—156	1.2	—94	11	8	4	3
33	959	.28	.87	—0.79	— 76	1.2	—46	11	9	4.5	4.5
34	791	.29	.83	+0.89	+ 92	0.5	+23	8	8	4	4
35	971	.30	.82	—0.91	— 88	1.4	—62	12	9	5	5
36	1016	.31	.78	—1.36	—133	0.7	—47	9	6	3	1
37	851	.31	.75	+0.29	+ 32	1.2	+19	11	8	4	2.5
38	878	.31	.74	+0.02	+ 5	1.3	+ 3	11	8	5	3
39	+ 891	+0.32	+0.73	—0.11	— 9	1.0	— 4	11	8	2.5	2
							—15				
40	+ 881	+0.58	—0.69	—0.01	— 7	1.2	— 4	13	10	4.5	3
41	+ 886	+0.58	—0.70	—0.06	— 12	1.4	— 8	13	10	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
42	'95, Aug. 1.4	+ 6.54	+ 0.42	+1174	+759	— 48	— 6	0	+ 3	— 22
43	3	6.54	.42	1209	759	48	6	0	3	22
44	9.3	6.54	.42	1197	758	48	8	+1	4	23
45	10	6.54	.42	1162	758	48	8	0	4	23
46	12	6.54	.42	1145	758	48	6	0	4	23
47	13	6.54	.42	1199	758	48	5	0	4	23
48	15	6.54	.42	1177	759	48	5	0	4	24
49	17	+ 6.54	+ 0.42	+1166	+759	— 48	— 5	+1	+ 4	— 24
50	96 Mar. 13.7	+ 6.44	+ 2.50	+1420	+747	— 285	— 5	+1	+17	— 46
51	16	— 3.25	—10.07	1114	—377	+1143	6	1	17	46
52	18	+ 6.44	+ 2.50	1465	+747	— 284	6	1	17	46
53	19	6.44	0.32	1247	747	37	6	1	17	46
54	22	6.44	0.32	1181	747	37	6	1	17	47
55	23	6.44	2.50	1433	747	285	6	1	17	47
56	29	6.44	0.32	1194	747	36	9	1	17	47
57	30	6.44	0.32	1140	747	36	9	1	17	47
58	Apr. 3	6.44	+ 0.32	1064	747	— 37	9	1	17	48
59	4	4.88	— 1.72	1107	566	+ 195	8	1	17	48
60	5	6.44	+ 0.32	1158	747	— 37	8	1	16	48
61	13	6.44	0.32	1229	747	36	13	+1	16	49
62	14	+ 6.44	+ 0.32	+1097	+747	— 37	—13	0	+16	— 49
	63, 64. Rejected Observations.									
63	94 Aug. 31.3	— 0.07	— 3.36	+1205	— 8	+ 381	+ 9	0	— 7	+ 12
64	96 Mar. 12.8	+ 0.32	+ 0.16	+1681	+ 37	— 18	— 6	+1	+18	— 46

For notes and estimated magnitudes see the solution next preceding.

Normal Equations.

$$+89.41\,x + 24.93\,y + 17.23\,z - 3.60 = 0$$
$$+24.93\,x + 49.03\,y + 18.31\,z + 12.89 = 0$$
$$+17.23\,x + 18.31\,y + 67.38\,z + 3.72 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
42	+ 860	+0.59	—0.72	+0.20	+ 14	1.4	+10	13	10	5	5
43	895	.59	.74	— .15	— 21	1.4	—15	13	10	5	5
44	881	.61	.81	— .01	— 8	1.4	— 6	13	10	5	4.5
45	845	.61	.82	+ .35	+ 28	1.3	+18	13	10	5	4
46	830	.62	.84	+ .50	+ 43	1.4	+30	13	10	5	5
47	885	.62	.85	— .05	— 12	1.3	— 8	13	10	4.5	4
48	863	.62	.87	+ .17	+ 10	1.2	+ 6	13	10	4.5	3
49	+ 853	+0.63	—0.88	+0.27	+ 19	1.3	+12	13	10	4	4
							+ 4				
50	+ 849	+1.20	+1.00	+0.31	+ 4	1.2	+ 2	13	11	3.5	3
51	846	1.21	1.00	+ .34	+ 7	1.2	+ 4	12	11	4.5	4
52	894	1.21	0.99	— .14	— 41	1.1	—23	13	11	4	2.5
53	923	1.22	.99	— .43	— 70	1.1	—38	13	10	4	3
54	856	1.22	.98	+ .24	— 3	1.2	— 2	13	10	4.5	3.5
55	860	1.23	.98	+ .20	— 8	1.3	— 5	13	11	5	3.5
56	867	1.24	.96	+ .13	— 15	1.4	—10	13	10	4.5	4.5
57	813	1.25	.95	+0.67	+ 39	1.4	+27	13	10	5	4
58	735	1.26	.93	+1.45	+117	1.4	+82	13	10	5	5
59	830	1.26	.92	+0.50	+ 21	1.3	+14	13	10	4	3
60	829	1.26	.91	+0.51	+ 22	1.4	+15	13	10	4.5	4
61	895	1.28	.85	—0.15	— 44	1.3	—29	13	10	3.5	3.5
62	+ 761	+1.29	+0.85	+1.19	+ 89	1.0	+44	13	10	2.5	2
							+ 6				
				63, 64. Rejected Observations.							
63	+ 592	—0.33	—0.97	+2.88	+699			6	8	3	3
64	+ 667	+1.20	+1.00	+2.13	+172			10	4	0.5	0

Assumed $D\alpha$ 1895.0 = +31^s.880

x = + 0.132

y = — 0.330

z = + 0.001

$d.D\alpha$ = +0.013

$d.D\mu$ = —0.033

π = 0″.00 ±0″.028

p_z = 59.72

[pnn.3] = 0.3646

pvv] = 0.3636

r = ±0^s.025

TABLE VII (Continued).

STARS 220, 221, 223.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*	—21*s*						
1	'94, Mar. 29.7	—15.96	—14.70	—2166	—2120	+1392	— 6	0	—76	—104
2	Apr. 7	27.40	17.13	1028	3639	1622	1		83	101
3	12	27.40	16.12	772	3639	1526	5		89	99
4	23.6	15.30	16.68	2297	2032	1580	7		91	95
5	24	20.23	16.12	1720	2687	1526	9		91	95
6	26	12.88	12.88	2230	1710	1220	15		92	94
7	May 3	14.26	12.35	1896	1894	1170	8		95	92
8	6	—15.42	—15.42	—2127	—2048	+1460	— 5	0	—96	— 90
9	94 Aug. 2.4	—32.20	—32.20	—1865	—4276	+3049	+42	0	—59	— 58
10	4	19.45	14.85	1924	2583	1406	51		57	57
11	11.3	18.88	20.28	2382	2507	1921	41		51	54
12	16	18.55	14.30	1833	2463	1354	41		46	52
13	17	—16.17	—11.61	—1984	—2147	+1100	+42	0	—45	— 51
14	95 Mar. 20.7	—29.14	—16.56	— 985	—3870	+1568	+31	0	— 9	+ 30
15	27	11.72	3.27	1840	1556	310	+ 4	+1	14	32
16	Apr. 4	17.72	11.14	1766	2353	1055	—14	0	19	35
17	9	11.72	11.72	2569	1556	1110	22	0	22	37
18	12	10.88	10.88	2642	1445	1030	25	0	24	39
19	17	18.73	18.73	2166	2487	1774	25	0	27	41
20	21.6	12.12	12.12	2434	1610	1148	27	0	29	43
21	23	16.16	16.16	2423	2146	1530	29	+1	30	44
22	24	18.58	15.43	1689	2467	1461	29	0	30	44
23	26	—17.73	—17.73	—2021	—2355	+1679	—30	0	—31	+ 45
24	95 July 29.4	— 8.69	— 8.69	—2837	—1154	+ 823	—36	0	— 1	+ 80
25	30	—10.88	— 0.01	—1625	—1445	+ 1	—32	0	0	+ 80

TABLE VII (Continued).

A. OE. 17415–16.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	-23^s			^{s}							
1	—1080	—0.76	+0.97	+0.30	+ 96	1.1	+ 53	10	11	3.5	3
2	1230	.73	.91	+1.80	+242	1.3	+157	10	16	4	3.5
3	1078	.72	.87	+0.28	+ 87	1.4	+ 61	10	17	4.5	4
4	942	.69	.77	—1.08	— 56	1.3	— 36	15	14	2.5	3
5	1076	.69	.75	+0.26	+ 76	1.4	+ 53	14	17	1.5	3.5
6	921	.68	.73	—1.29	— 80	1.5	— 60	15	15	4.5	4.5
7	815	.66	.66	—2.35	—191	1.6	—153	15	17	5	4
8	— 906	—0.65	+0.62	—1.44	—103	0.6	— 31 + 6	6	6	2.5	1
9	—1167	—0.41	—0.72	+1.17	+ 61	0.8	+ 24	6	6	3	3
10	1164	.41	.74	+1.14	+ 56	1.3	+ 36	10	12	4.5	4.5
11	1032	.39	.81	—0.18	— 81	1.5	— 60	13	14	5	5
12	999	.37	.86	—0.51	—116	1.5	— 87	13	15	5	5
13	—1095	—0.37	—0.87	+0.45	— 21	1.7	— 18 — 21	17	20	5	5
14	—1235	+0.22	+0.99	+1.85	+254	1.5	+190	8	15	5	5
15	1063	.24	.97	+0.13	+ 80	1.7	+ 68	13	18	4.5	4.5
16	1062	.26	.93	+ .12	+ 76	1.2	+ 46	9	11	4	4
17	1022	.27	.90	— .28	+ 34	1.4	+ 24	13	13	4.5	4
18	1067	.28	.87	+0.17	+ 77	1.5	+ 58	14	14	4.5	4.5
19	890	.30	.83	—1.60	—103	0.9	— 46	7	7	5	4
20	909	.31	.79	—1.41	— 87	0.7	— 30	9	9	2.5	0.5
21	1053	.31	.77	+0.03	+ 56	1.2	+ 34	17	17	3.5	2
22	710	.31	.75	—3.40	—289	1.4	—202	15	17	5	3
23	— 713	+0.32	+0.74	—3.37	—286	1.3	—186 — 4	13	13	3	3
24	—1125	+0.58	—0.67	+0.75	+ 24	1.2	+ 14	12	12	4	3.5
25	—1021	+0.58	—0.68	—0.29	— 80	1.7	— 68	14	21	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
26	'95, Aug. 1.4	—10.88	—10.88	—2686	—1445	+1030	—34	0	+ 2	+ 81
27	3	9.32	4.72	2390	1238	447	34	0	4	81
28	9.3	7.85	2.46	2410	1042	233	43	0	9	84
29	10	12.03	1.82	1755	1598	172	39	+1	10	84
30	12	10.88	0.01	1747	1445	1	29	0	12	85
31	13	19.42	19.42	2589	2579	1839	29	0	13	85
32	15	15.56	2.11	1496	2066	200	29	0	14	86
33	17	—11.89	— 3.68	—2001	—1579	+ 348	—29	0	+16	+ 86
34	'96, Mar. 22.7	—10.98	— 0.07	—1550	—1458	+ 7	—32	+1	+51	+169
35	29	10.98	0.11	1783	1458	10	47	1	46	172
36	30	12.88	9.15	2310	1710	867	47	1	45	172
37	Apr. 3	9.42	0.11	2130	1251	10	48	0	43	174
38	4	9.04	3.60	1977	1200	341	45	1	42	174
39	5	10.98	1.63	1677	1458	154	45	1	41	174
40	13	9.87	1.55	1758	1311	147	68	0	36	177
41	14	12.20	6.92	2048	1620	655	70	1	36	178
42	20	4.15	2.35	3017	551	223	71	0	33	180
43	21	— 0.11	— 0.11	—3188	— 15	+ 10	—71	+1	+33	+180
				44. Rejected Observations.						
44	95 Mar. 29.7	— 3.05	— 3.05	—3544	— 405	+ 289	— 4	0	—15	+ 33

1. Star 220, f. 2, 10. Star 221, fff. 5. Light clouds near. 6. Star 221 not seen on a few threads. 7, 8. Star 221, ff or fff; invisible on some threads. One thread rejected in each observation. 9, 11. Star 221, ff. 14, 16, 19, 20, 22. Star 221, fff. 14. Daylight illumination.

Epoch.	Estimated Magnitudes.†				No. of Ests.
4th	7.78	9.±	8.18	7.38	4
5th	7.67	8.86	7.91	7.24	7

† Including star 222.

Normal Equations.

$+84.52\,x + 32.47\,y + 20.39\,z - 12.47 = 0$

$+32.47\,x + 52.67\,y + 14.07\,z - 9.80 = 0$

$+20.39\,x + 14.07\,y + 59.05\,z - 42.26 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images	
				s							
26	−1052	+0.59	−0.70	+0.02	− 51	1.5	− 38	14	14	5	5
27	1130	.59	.72	+0.80	+ 26	1.7	+ 22	15	18	5	5
28	1169	.61	.79	+1.19	+ 60	1.7	+ 51	16	19	5	4.5
29	1125	.61	.80	+0.75	+ 15	1.5	+ 11	13	19	5	4
30	1123	.62	.82	+0.73	+ 12	1.7	+ 10	14	21	5	5
31	1260	.62	.83	+2.10	+148	1.1	+ 81	8	8	4.5	4
32	1291	.62	.85	+2.41	+177	1.3	+115	10	16	4.5	3
33	−1159	+0.63	−0.87	+1.09	+ 44	1.3	+ 29 + 23	10	14	4	4
34	− 812	+1.22	+0.99	−2.38	−167	1.5	−125	14	13	5	5
35	1059	1.24	.96	+0.09	+ 78	1.7	+ 66	14	21	4.5	4.5
36	982	1.25	.96	−0.68	+ 1	1.2	+ 1	12	14	4	2.5
37	1202	1.26	.93	+1.52	+218	1.7	+185	15	21	5	5
38	664	1.26	.93	−3.86	−320	1.0	−160	12	15	3	2
39	810	1.26	.92	−2.40	−174	1.6	−139	14	20	4.5	4.5
40	777	1.28	.86	−2.73	−212	1.5	−159	14	19	4	4
41	868	1.29	.86	−1.82	−121	1.0	− 60	12	15	3	2
42	1203	1.30	.80	+1.53	+210	1.4	+147	18	19	3.5	2.5
43	−1050	+1.31	+0.79	0.00	+ 56	1.9	+ 53 − 19	21	21	5	5
					44. Rejected Observation.						
44	−1646	+0.24	+0.97	+5.96	+662			3	3	4	2.5

19. Clouds. 20. Star 221, one thread rejected. 22. Star 221, 9.1 mag. 30. Star 221, ff, image sharp. 31, 32, 36, 41, 42. Star 221, fff. 41. Star 221, one thread rejected after comparison of times reduced to middle thread. 44. Star 221, extremely faint. Began to observe it on group D but was obliged to abandon the observation.

Assumed $D\alpha$ 1895.0 $= -24^s.050$

$x = -0.032$

$y = +0.013$

$z = +0.724$

$d.D\alpha = -0^s.003$

$d.D\mu = +0.001$

$\pi = +0''.20 \pm 0''.050$

$p_z = 53.16$

$[pnn.3] = 1.5469$

$[pvv] = 1.5424$

$r = \pm 0^s.066$

TABLE VII (Continued).

STARS 221, 222.

No.	Date.	c_1'	c_2'	T_2-T_3	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta \tan \delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
			s	−9s						
1	'94, Apr. 7.7		−22.37	−1105		+ 9	0	0	− 3	− 50
2	12		20.21	967		8			3	49
3	23.6		19.61	799		8			2	48
4	24		20.21	954		8			2	48
5	25		15.31	887		6			2	47
6	26		14.11	964		6			2	47
7	May 3		−14.11	857		+ 6			2	46
8	6		+ 1.14	−1014		0	0	0	− 2	− 46
9	94 Aug. 2.4		−35.59	− 905		+14	0	0	+ 1	− 29
10	4		21.01	1148		8	− 1		1	28
11	6		18.87	922		8	0		1	28
12	11.3		22.49	1036		9	1		1	27
13	16		14.11	1056		6	0		2	26
14	17		−14.15	−1043		+ 6	− 1	0	+ 2	− 26
15	95 Mar. 20.7		−19.14	−1094		+ 8	0	0	− 4	+ 15
16	27		0.87	1029		0			4	16
17	Apr. 4		7.46	1050		3			4	18
18	9		8.95	1064		4			4	18
19	12		7.99	967		3			3	19
20	17		13.22	986		5			3	20
21	21.6		16.15	987		6			3	21
22	23		20.25	1114		8			3	22
23	24		15.08	984		6			3	22
24	26		−19.15	− 973		+ 8	0	0	− 3	+ 23
25	95 July 29.4		− 8.73	−1075		+ 4	0	0	0	+ 40
26	30		− 1.94	−1064		+ 1	0	0	0	+ 40

TABLE VII (Continued).

A. OE. 17415-16.

No.	$\alpha_2-\alpha_3$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	-9^s			^{s}							
1	—1149	—0.73	+0.91	+1.19	+177	1.0	+88	8		4	3.5
2	1011	.72	.87	—0.19	+ 36	1.1	+20	9		4.5	4
3	841	.69	.77	—1.89	—140	0.9	—63	7		2.5	3
4	996	.69	.75	—0.34	+ 14	0.9	+ 6	9		1.5	3.5
5	930	.68	.74	—1.00	— 54	1.3	—35	10		4.5	4.5
6	1007	.68	.73	—0.23	+ 23	1.0	+12	7		4.5	4.5
7	899	.66	.66	—1.31	— 90	1.2	—54	11		5	4
8	—1062	—0.65	+0.62	+0.32	+ 71	0.6	+21	5		2.5	1
							— 1				
9	— 919	—0.41	—0.72	—1.11	—155	0.7	—54	4		3	3
10	1168	.41	.74	+1.38	+ 93	1.1	+51	8		4.5	4.5
11	941	.40	.75	—0.89	—135	1.2	—81	9		5	5
12	1054	.39	.81	+0.24	— 25	1.2	—15	8		5	5
13	1074	.37	.86	+0.44	— 10	1.3	— 6	10		5	5
14	—1062	—0.37	—0.87	+0.32	— 22	1.3	—12	11		5	5
							—20				
15	—1075	+0.22	+0.99	+0.45	+101	1.2	+61	8		5	5
16	1017	.24	.97	— .13	+ 41	1.5	+31	14		4.5	4.5
17	1033	.26	.93	+ .03	+ 55	1.1	+30	8		4	4
18	1046	.27	.90	+ .16	+ 66	1.2	+40	10		4.5	4
19	948	.28	.87	— .82	— 34	1.2	—20	9		4.5	4.5
20	964	.30	.83	— .66	— 20	0.9	— 9	5		5	4
21	963	.31	.79	— .67	— 24	0.6	— 7	7		2.5	0.5
22	1087	.31	.77	+ .57	+ 99	0.9	+44	9		3.5	2
23	959	.31	.75	— .71	— 30	1.1	—16	11		5	3
24	— 945	+0.32	+0.74	—0.85	— 45	0.9	—20	7		3	3
							+13				
25	—1031	+0.58	—0.67	+0.01	— 47	1.0	—24	8		4	3.5
26	—1023	+0.58	—0.68	—0.07	— 56	1.3	—36	11		5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	T_2-T_2 *	$\Delta_1 C.c_1'$ *	$\Delta_2 C.c_2'$ *	$\Delta \tan \delta.n$ *	Rate. *	Precess. and Nutat. *	Prop. Mot. *
			s							
27	'95, Aug. 1.4		—15.76	—1143		+ 6	0	0	0	+ 41
28	3		4.75	1184		2	0		0	41
29	9.3		1.94	1216		1	+ 1		0	42
30	10		1.94	1171		1	0		+ 1	42
31	12		1.94	1130		1	0		1	42
32	13		18.50	1256		7	1		1	43
33	15		1.69	1182		1	0		1	43
34	17		— 2.00	—1090		+ 1	+ 1	0	+ 1	+ 43
35	96 Mar. 22.7		—14.19	— 876		+ 6	0	0	— 4	+ 84
36	29		2.04	1054		1	0		4	86
37	30		8.83	1056		4	+ 1		4	86
38	Apr. 3		2.04	1076		1	0		4	87
39	4		3.49	1081		1	1		4	87
40	5		2.04	1021		1	0		4	87
41	13		1.93	1006		1	1		4	88
42	14		9.36	993		4	0		4	89
43	20		4.85	1117		2	+ 1		4	90
44	21.6		— 2.04	—1130		+ 1	0	0	— 4	+ 90
	45. Rejected Observation.									
45	95 Mar. 29.7		— 3.05	—1613		+ 1	0	0	— 4	+ 17

For notes and estimated magnitudes see the solution next preceding.

Normal Equations.

$$+53.04\,x + 17.47\,y + 11.30\,z - 3.94 = 0$$
$$+17.47\,x + 30.05\,y + 8.66\,z - 2.70 = 0$$
$$+11.30\,x + 8.66\,y + 36.80\,z - 21.54 = 0$$

TABLE VII (Continued).

No.	$\alpha_2-\alpha_3$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
27	—1096	+0.59	—0.70	+0.66	+ 16	1.0	+ 8	6	5	5
28	1141	.59	.72	+1.11	+ 60	1.3	+29	10	5	5
29	1172	.61	.79	+1.42	+ 87	1.3	+57	11	5	4.5
30	1127	.61	.80	+0.97	+ 41	1.3	+27	11	5	4
31	1086	.62	.82	+0.56	— 1	1.3	— 1	11	5	5
32	1204	.62	.83	+1.74	+116	0.8	+46	5	4.5	4
33	1137	.62	.85	+1.07	+ 48	1.0	+24	9	4.5	3
34	—1044	+0.63	—0.87	+0.14	— 46	0.9	—21	7	4	4
							+12			
35	— 790	+1.22	+0.99	—2.40	—191	1.0	—96	7	5	5
36	971	1.24	.96	—0.59	— 11	1.3	— 7	11	4.5	4.5
37	969	1.25	.96	— .61	— 13	0.9	— 6	8	4	2.5
38	992	1.26	.93	— .38	+ 8	1.3	+ 5	11	5	5
39	996	1.26	.93	— .34	+ 12	0.9	+ 5	8	3	2
40	937	1.26	.92	—0.93	— 48	1.3	—31	11	4.5	4.5
41	920	1.28	.86	—1.10	— 68	1.1	—37	10	4	4
42	904	1.29	.86	—1.26	— 85	0.7	—30	7	3	2
43	1028	1.30	.80	—0.02	+ 35	1.0	+18	10	3.5	2.5
44	—1043	+1.31	+0.79	+0.13	+ 49	1.3	+32	11	5	5
							—15			
				45. Rejected Observation.						
45	—1599	+0.24	+0.97	+5.69	+625			3	4	2.5

Assumed $D\alpha$ 1895.0 $= -10^s.030$ $\quad d.D\alpha = -0^s.003$ $\quad p_z = 33.39$

$x = -0.034$ $\quad d.D\mu = -0.007$ $\quad [pnn.3] = 0.2558$

$y = -0.066$ $\quad [pvv] = 0.2536$

$z = +0.612$ $\quad \pi = +0''.34 \pm 0''.051$ $\quad r = \pm 0^s.027$

TABLE VII (Continued).

STARS 224, 225, 226.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s	+ 124s						
1	'94, Mar. 29.7	— 0.04	— 0.04	+ 924	0	0	0	+1	+13	+18
2	Apr. 7	0.04	.04	919	0		0	1	13	18
3	23	0.04	.04	1048	0		0	1	10	16
4	24	— 5.56	.04	983	+ 2		0	0	10	16
5	25	+ 3.39	.04	970	— 1		0	1	10	16
6	26	— 0.04	.04	1002	0		+ 1	1	10	16
7	May 3.6	0.04	.04	980	0		0	1	9	16
8	6	0.04	.04	947	0		0	0	9	16
9	8	1.81	.04	983	+ 1		0	1	8	15
10	10	— 0.04	— 0.04	+ 973	0	0	0	+1	+ 8	+ 15
11	94 Aug. 4.4	— 0.09	— 0.09	+1025	0	0	— 2	+1	— 8	+ 10
12	6	5.61	.09	1019	+ 2	0	2	1	8	10
13	11	0.09	.09	971	0	0	1	1	9	9
14	16.3	0.09	.09	994	0	0	2	0	9	9
15	17	29.14	— .09	935	+ 9	0	1	1	9	9
16	20	0.09	+ .08	976	0	0	2	1	10	8
17	23	.09	— .09	990	0	0	2	1	10	8
18	24	.09	.09	994	0	0	1	0	10	8
19	25	— 0.09	— 0.09	989	0	0	1	1	10	8
20	27	+ 1.01	+ 2.03	930	0	+ 1	2	1	10	8
21	30	— 0.09	— 5.61	983	0	— 2	2	1	10	8
22	31	+ 1.68	11.40	949	— 1	3	2	0	10	8
23	Sept. 1	— 0.09	0.09	973	0	0	2	1	10	8
24	5	1.86	.09	962	+ 1	0	1	1	11	7
25	10	0.09	.09	1058	0	0	2	1	11	7
26	11	— 0.09	0.69	946	0	0	2	0	11	7
27	13	+ 5.43	— 5.40	+ 990	— 2	— 2	— 1	+ 1	—11	+ 7

TABLE VII (Continued).

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No.	$D\alpha$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 124^s			^{s}							
1	956	—0.76	+0.98	+0.64	+ 56	1.5	+42	25	25	1.5	3
2	951	.73	.95	+0.69	+ 62	1.7	+53	25	25	4	2.5
3	1075	.69	.82	—0.55	— 65	1.6	—52	25	25	2.5	3
4	1011	.69	.81	+ .09	— 1	1.6	— 1	22	25	3	3.5
5	996	.68	.80	+ .24	+ 14	1.7	+12	23	25	3.5	3
6	1030	.68	.79	— .10	— 20	2.0	—20	25	25	5	5
7	1006	.66	.72	+ .14	+ 3	1.8	+ 3	25	25	3	4
8	972	.65	.68	+ .48	+ 36	1.3	+23	25	25	3.5	1
9	1008	.65	.66	+ .12	— 1	1.8	— 1	24	25	4.5	4
10	+ 997	—0.64	+0.63	+0.23	+ 10	1.6	+ 8 + 7	25	25	3.5	2.5
11	+1026	—0.41	—0.68	—0.06	— 45	2.0	—45	25	25	5	5
12	1022	.40	.69	— .02	— 41	1.9	—39	22	25	4.5	4.5
13	971	.39	.75	+ .49	+ 9	2.0	+ 9	25	25	5	5
14	992	.37	.81	+ .28	— 13	2.0	—13	25	25	5	5
15	944	.37	.82	+ .76	+ 35	1.6	+28	9	25	5	5
16	973	.36	.85	+ .47	+ 5	1.7	+ 4	25	24	3	3
17	987	.35	.87	+ .33	— 9	2.0	— 9	25	25	5	5
18	991	.35	.88	+ .29	— 13	2.0	—13	25	25	4.5	4.5
19	987	.35	.89	+ .33	— 9	1.9	— 9	25	25	4	4
20	928	.34	.91	+ .92	+ 49	1.3	+32	24	19	2.5	2
21	978	.34	.93	+ .42	— 1	1.5	— 1	25	22	2.5	2.5
22	941	.33	.93	+ .79	+ 36	1.8	+32	24	17	5	5
23	970	.33	.93	+ .50	+ 7	2.0	+ 7	25	25	5	5
24	959	.32	.96	+ .61	+ 18	1.7	+15	24	25	4	3
25	1053	.31	.98	— .33	— 76	1.4	—53	25	25	2.5	2
26	940	.30	.98	+ .80	+ 37	2.0	+37	25	24	5	5
27	+ 982	—0.30	—0.99	+ .38	— 6	1.3	— 4	22	8	4	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
28	'94, Sept. 15.3	− 0.09	− 0.09	+ 955	0	0	− 1	+1	−11	+ 7
29	17	0.09	.09	947	0	0	1	1	11	7
30	18	0.09	.09	979	0	0	1	0	11	7
31	19	− 9.09	− 0.09	+ 982	+ 3	0	− 1	+1	−11	+ 7
32	'95, Mar. 27.7	− 0.02	− 0.02	+1086	0	0	0	+2	+11	− 6
33	Apr. 4	.02	.02	1027	0	0	0	2	11	6
34	9	.02	.02	998	0	0	+ 1	1	10	6
35	12	.02	.02	1037	0	0	1	1	10	6
36	16	.08	.08	1039	0	0	1	1	9	7
37	21	.08	.08	1052	0	0	1	1	9	7
38	22	.08	.08	1064	0	0	1	1	9	7
39	23	.08	.08	995	0	0	1	1	9	7
40	24	.08	.08	1080	0	0	1	1	9	7
41	26	.08	.08	1074	0	0	1	1	8	7
42	27.6	0.08	0.08	1006	0	0	1	1	8	8
43	28	14.60	14.60	978	+ 4	− 4	1	1	8	8
44	29	− 0.08	− 0.08	+1102	0	0	+ 1	+1	+ 8	− 8
45	95 Aug. 9.4	− 0.02	− 0.02	+1053	0	0	+ 2	+1	−11	− 14
46	10	.02	.02	1027			1	1	11	15
47	12	.02	.02	988			1	1	11	15
48	13	.02	.02	1104			1	1	11	15
49	15.3	.02	.02	1049			1	1	11	15
50	17	− 0.02	− 0.02	+1033	0	0	+ 1	+1	−12	− 15
51	96 Mar. 22.7	− 0.12	+ 1.40	+1118	0	0	+ 1	+3	+ 8	− 30
52	29	.12	− 0.12	1116			2	4	8	30
53	30	.12	.12	1019			2	3	8	30
54	Apr. 3	− 0.12	− 0.12	+1103	0	0	+ 2	+4	+ 8	− 30

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
28	+ 951	—0.29	—0.99	+0.69	+ 25	1.7	+21	25	25	3.5	3.5
29	943	.29	1.00	+ .77	+ 33	1.4	+23	25	25	2.5	2
30	974	.28	1.00	+ .46	+ 3	2.0	+ 3	25	25	5	5
31	+ 981	—0.28	—1.00	+0.39	— 4	1.9	— 4	20	25	5	5
							+ 1				
32	+1093	+0.24	+0.99	—0.73	— 51	1.9	—48	25	25	4	4
33	1034	.26	.96	— .14	+ 8	1.7	+ 7	25	25	3.5	3
34	1004	.27	.93	+ .16	+ 37	1.8	+33	25	25	4.5	3.5
35	1043	.28	.91	— .23	— 2	1.7	— 2	25	25	3.5	3
36	1043	.29	.88	— .23	— 2	1.6	— 2	25	25	3	2.5
37	1056	.31	.84	— .36	— 16	1.6	—13	25	25	3	2.5
38	1068	.31	.83	— .48	— 28	1.7	—24	25	25	3	3
39	999	.31	.82	+ .21	+ 40	1.5	+30	25	25	3.5	2
40	1084	.31	.81	— .64	— 45	1.7	—38	25	25	3	3
41	1077	.32	.80	— .57	— 38	1.5	—38	25	25	3	2
42	1008	.32	.79	+ .12	+ 31	1.8	+28	25	25	4	3.5
43	980	.33	.78	+ .40	+ 59	1.4	+41	17	17	3.5	
44	+1104	+0.33	+0.77	—0.84	— 66	2.0	—66	25	25	4.5	4.5
							— 7				
45	+1031	+0.61	—0.73	—0.11	— 21	1.9	—20	25	25	4.5	4
46	1003	.61	.74	+ .17	+ 7	1.9	+ 7	25	25	5	4
47	964	.62	.77	+ .56	+ 45	2.0	+45	25	25	5	5
48	1080	.62	.78	— .60	— 71	1.2	—43	25	25	2.5	1
49	1025	.62	.80	— .05	— 17	2.0	—17	25	25	4.5	4.5
50	+1008	+0.63	—0.82	+0.12	+ 1	1.7	+ 1	25	25	3	3
							— 4				
51	+1100	+1.22	+1.00	—0.80	— 29	1.6	—23	25	20	4	3
52	1100	1.24	0.98	— .80	— 30	1.9	—28	25	25	4.5	4
53	1002	1.25	0.98	+ .18	+ 70	1.7	+60	25	25	3	3
54	+1087	+1.26	+0.96	—0.67	— 16	1.7	—14	25	25	4.5	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
55	'96, Apr. 4.7	— 0.12	— 0.12	+1128	0	0	+ 2	+3	+ 8	— 30
56	5	.12	.12	1019			2	4	8	31
57	13	.12	.12	1069			2	2	7	31
58	14	.12	.12	1108			3	2	7	31
59	20	.12	.12	1008			3	3	7	31
60	21	.12	.12	1104			3	2	6	31
61	23	— 0.12	.12	1103			3	3	6	31
62	24	+ 0.63	— 0.01	+1113	0	0	+ 2	+2	+ 6	— 31

5 Image of star 224 became so diffuse suddenly at Group G that observation was omitted on two threads. 8. Images very diffuse. 16. Observed through clouds. 20. All three stars ff. 21. Star 226, f. 22. All three stars ff. Sky filled with smoke. 26. Light clouds.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	6.66	6.78	6.66	5
5th	6.78	6.75	6.82	10

Normal Equations.

$+187.06\,x + 26.69\,y + 12.06\,z + 8.19 = 0$

$+ 26.69\,x + 89.09\,y + 46.39\,z - 35.06 = 0$

$+ 12.06\,x + 46.39\,y + 140.07\,z - 47.47 = 0$

STARS 227, 228, 229.

		s	s	— 16s						
1	'94, Apr. 23.7	— 7.26	— 0.04	— 890	— 322	+ 2	— 2	0	—15	+ 23
2	24	29.09	5.56	212	1289	226	2		15	23
3	25	0.04	0.04	1144	0	2	3		15	23
4	26	23.35	12.85	643	1034	522	3		15	23
5	May 3	34.50	34.50	1213	1528	1404	2		15	22
6	6	5.24	5.56	1172	232	226	1		15	22
7	8.6	7.82	5.56	1093	346	226	1		15	22
8	10	0.05	0.04	1159	2	2	1		15	22
9	11	— 5.56	5.56	1100	246	226	1		15	22
10	12	+ 1.15	0.04	1197	51	2	— 1		15	21
11	18	—21.08	— 5.56	— 558	— 934	+ 226	+ 2	0	—15	+ 21

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images	
				s							
55	+1111	+1.26	+0.96	—0.91	— 40	2.0	—40	25	25	5	5
56	1002	1.26	.95	+ .18	+ 69	2.0	+69	25	25	5	4.5
57	1049	1.28	.90	— .29	+ 21	1.9	+20	25	25	5	4
58	1089	1.29	.89	— .69	— 19	1.4	—13	25	25	2.5	2
59	990	1.30	.85	+0.30	+ 79	1.6	+63	25	25	2.5	2.5
60	1084	1.31	.84	—0.64	— 14	1.3	— 9	25	25	3	1
61	1084	1.31	.82	—0.64	— 15	1.7	—13	25	25	4	3
62	+1092	+1.32	+0.81	—0.72	— 23	1.7	—20 + 4	19	20	5	4

27, 28, 29, 30, 31, 32. Daylight illumination. 48. Est'd mags., stars 224 and 225: 7.0, 7.8. Star 226, ff. Clouds. 51. Daylight illumination. Est'd mag. of star 225, 6.7, star 226, fff, invisible on Group D.

Assumed $D\alpha$ 1895.0 $= +125^s.020$ $\quad d.D\alpha = -0^s.010$ $\quad p_z = 115.89$

$x = -0.102$ $\quad d.D\mu = +0.029$ $\quad [pnn.3] = 0.2252$

$y = +0.294$ $\quad [pvv] = 0.2272$

$z = +0.250$ $\quad \pi = +0''.19 \pm 0''.029$ $\quad r = \pm 0^s.021$

α LYRAE.

	— 17^s										
				s							
1	— 204	—0.69	+0.89	+0.14	+ 8	1.7	+ 7	21	25	3	3
2	269	.67	.88	+ .79	+ 73	1.1	+40	9	22	3.5	2
3	137	.68	.88	— .53	— 59	2.0	—59	25	25	4.5	4.5
4	150	.68	.87	—0.40	— 47	1.3	—30	12	18	5	4
5	332	.66	.81	+1.42	+135	0.5	+34	6	6	4.5	4.5
6	172	.66	.78	—0.18	— 26	1.6	—21	21	22	3.5	3
7	207	.65	.76	+ .17	+ 9	1.4	+ 6	19	22	3	2
8	153	.65	.73	— .37	— 45	1.7	—38	25	25	3.5	2.5
9	114	.64	.72	— .76	— 83	1.5	—62	22	22	3.5	2.5
10	241	.64	.71	+ .51	+ 43	1.8	+39	24	25	4	4
11	— 258	—0.62	+0.63	+0.68	+ 59	1.3	+38 — 4	13	22	2.5	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
12	'94, Aug. 16.4	− 7.68	− 0.09	− 885	− 340	+ 4	+ 9	0	− 6	+ 13
13	18	3.73	.09	1065	165	4	8		6	13
14	23	0.77	.09	1224	34	3	8		5	12
15	24.3	7.67	.09	843	340	4	8		5	12
16	25	− 3.63	.09	1045	− 161	3	8		5	12
17	30	+ 1.74	.09	1307	+ 77	4	10		4	11
18	Sept. 1	− 0.18	.09	1274	− 8	4	10		4	11
19	10	0.09	0.09	1249	4	3	11		3	10
20	11	3.84	1.86	1188	170	76	11		3	10
21	15	0.09	− 0.09	1269	4	+ 4	8		3	10
22	17	0.26	+ 5.43	1015	12	−221	8		3	10
23	18	14.61	− 0.09	527	647	+ 4	8		3	10
24	19	0.09	0.09	1225	4	3	8		2	9
25	23	23.44	1.55	193	1038	63	8		2	9
26	24	1.18	0.09	1219	52	4	9		2	9
27	25	0.09	0.09	−1250	4	3	8		2	9
28	28	−27.51	− 0.09	0	−1219	+ 4	+ 7	0	− 2	+ 9
29	95 Apr. 15.7	− 0.08	− 0.08	−1195	− 4	+ 3	− 5	0	0	− 10
30	16	25.32	0.08	12	1122	3	5			10
31	21	5.60	5.87	1206	248	239	6			10
32	22	0.08	0.08	1135	4	3	6			10
33	23	0.08	.08	1197	4	3	6			10
34	24	2.84	.08	1041	126	3	6			10
35	26	3.68	.08	931	163	4	7			10
36	27	− 2.63	.08	1021	− 117	3	8			11
37	28	+ 3.35	.08	1306	+ 148	3	9			11
38	29	− 0.08	.08	1166	− 4	3	9			11
39	30	+ 0.93	− 0.08	−1335	+ 41	+ 3	− 9	0	0	− 11

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
12	— 205	—0.37	—0.72	+0.15	— 14	1.9	—13	20	24	5	5
13	211	.37	.74	+ .21	— 8	1.9	— 8	20	25	5	5
14	240	.35	.80	+ .50	+ 21	2.0	+21	24	25	5	5
15	164	.35	.81	— .26	— 55	1 8	—50	20	19	5	5
16	188	.35	.83	— .02	— 31	1.7	—26	20	25	5	3.5
17	209	.33	.87	+ .19	— 11	1.9	—10	21	25	4.5	4.5
18	261	.33	.88	+ .71	+ 41	2.0	+41	24	25	5	5
19	232	.31	.94	+ .42	+ 11	1.7	+ 9	25	25	3 5	3
20	264	.30	.95	+ .74	+ 43	1.7	+37	14	24	5	5
21	254	.29	.97	+ .64	+ 33	1.8	+30	25	25	4	4
22	233	.29	.97	+ .43	+ 12	1.7	+10	24	22	4	4
23	155	.28	.98	— .35	— 66	1.5	—50	17	25	3	3
24	211	.28	.98	+ .21	— 10	2.0	—10	25	25	5	5
25	153	.27	0.99	— .37	— 68	0.9	—31	6	18	2.5	2
26	251	.27	1.00	+ .61	+ 30	1.6	+24	24	25	2.5	2.5
27	236	.26	1.00	+ .46	+ 15	2.0	+15	25	25	5	5
28	— 201	—0.26	—1.00	+0.11	— 20	1.0	—10 — 1	4	19	5	5
29	— 211	+0.29	+0.95	+0.21	+ 34	1.7	+ 29	25	25	4	3
30	146	.29	.94	— .44	— 32	1.2	— 19	11	25	3	2
31	231	.31	.91	+ .41	+ 54	1.1	+ 30	22	21	3	0.5
32	152	.31	.90	— .38	— 25	1.9	— 24	25	25	5	4
33	214	.32	.89	+ .24	+ 36	1.3	+ 23	25	25	3.5	1.5
34	180	.32	.88	— .10	+ 2	1.8	+ 2	22	25	4	4
35	107	.32	.88	— .83	— 71	1.6	— 57	23	25	3	3
36	154	.33	.87	— .36	— 24	1.7	— 20	23	25	4.5	3
37	175	.33	.86	— .15	— 3	1.7	— 3	23	25	4.5	3
38	187	.33	.85	—0.03	+ 9	1.8	+ 8	25	25	5	3.5
39	— 311	+0.33	+0.84	+1.21	+133	1.6	+106	24	25	3.5	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
40	'95, May 6.6	— 3.58	— 0.08	—1030	—159	+ 3	— 9	0	— 1	— 11
41	7	0.08	.08	1211	4	4	9		1	12
42	8	0.08	.08	1140	4	3	9		1	12
43	9	— 0.08	— 0.08	—1207	— 4	+ 3	—10	0	— 1	— 12
44	95 Aug. 12.4	— 0.02	— 0.02	—1209	— 1	+ 1	— 7	0	+10	— 21
45	15	0.02	0.02	1120	1	1	7		10	22
46	17	— 3.18	— 3.18	—1169	—141	+129	— 7	0	+ 9	— 22
47	96 Apr. 13.7	—21.63	—21.63	—1032	—958	+880	—15	0	+14	— 44
48	14	1.89	0.12	1006	84	5	16		14	44
49	20	— 0.12	.12	1089	— 5	5	17		14	44
50	21	+ 1.65	.12	1276	+ 73	5	16		14	45
51	23	— 0.12	— .12	1063	— 5	+ 5	16		14	45
52	24	0.12	+ .98	1057	5	— 40	15		14	45
53	May 4	0.12	— .12	1152	5	+ 5	15		14	46
54	5.6	1.89	.12	981	84	5	16		14	46
55	6	0.12	.12	1071	5	5	16		14	46
56	7	0.12	0.12	1148	5	5	17		14	46
57	8	— 1.30	— 2.94	—1178	— 58	+120	—17	0	+14	— 46

2, 4, 7, 9, 11, 21, 26. Star 227, f. 14, 15, 18, 23, 29, 33, 37, 39, 50. Star 227, ff. 13, 16, 17, 20, 22, 24, 25, 28. Star 227, fff. 17. Star 228, f. 24, 28. Daylight illumination for star 227, lamp for stars 228 and 229. 34. Star 227 too faint to observe on some of the threads. 40. Star 227, fff; thick fog. 47. Daylight illumination. 48. Star 227, fff. Est'd mags.: 9, 8.0, 7.2.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
3d	8.38	7.92	6.58	5	$+160.77\,x + 31.27\,y + 29.11\,z + 3.70 = 0$
4th	8.37	7.87	6.40	3	$+ 31.27\,x + 82.73\,y + 45.60\,z - 20.00 = 0$
5th	8.46	7.64	6.35	8	$+ 29.11\,x + 45.60\,y + 115.53\,z - 25.71 = 0$

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
40	— 207	+0.35	+0.78	+0.17	+ 28	1.9	+27	18	25	4.5	4.5
41	233	.35	.77	+ .43	+ 53	2.0	+53	25	25	5	5
42	163	.35	.76	— .27	— 17	1.7	—14	25	25	4.5	3
43	— 231	+0.36	+0.74	+0.41	+ 51	1.7	+43	25	25	4.5	3.5
							+12				
44	— 227	+0.61	—0.67	+0.37	+ 27	2.0	+27	25	25	5	5
45	139	0.61	0.71	—0.51	— 61	1.8	—55	25	25	4.5	3
46	— 201	+0.62	—0.73	+0.11	0	1.7	0	23	23	4.5	3
							— 9				
47	— 155	+1.28	+0.95	—0.35	— 4	1.5	— 3	13	13	5	4.5
48	131	1.29	.95	— .59	— 28	1.7	—24	24	25	4.5	3
49	136	1.30	.91	— .54	— 24	1.7	—20	25	25	3.5	3.5
50	245	1.31	.91	+ .55	+ 85	1.3	+55	24	25	3	1
51	110	1.31	.89	— .80	— 51	1.7	—43	25	25	4	3.5
52	148	1.32	.88	— .42	— 12	2.0	—12	25	24	5	5
53	199	1.35	.79	+ .09	+ 38	2.0	+38	25	25	4.5	4.5
54	108	1.35	.78	— .82	— 53	1.9	—50	24	25	5	4
55	119	1.35	.77	— .71	— 43	1.8	—39	25	25	5	3
56	197	1.35	.76	+ .07	+ 35	1.7	+30	25	25	4	3
57	— 165	+1.36	+0.74	—0.25	+ 3	1.6	+ 2	24	23	4	2.5
							— 6				

Assumed $D\alpha$ 1895.0 = —17^s.190 $d.D\alpha$ = —0.009 p_z = 89.45

x = — 0.090 $d.D\mu$ = +0.018 [$pnn.3$] = 0.2738

y = + 0.179 pvv] = 0.2716

z = + 0.174 π = +0″.10 ±0″.030 r = ±0^s.024

	Stars 227 and 228.	Stars 228 and 229. Dates of observation same as for star 227.	Stars 228 and 229. All observations.
$d.\Delta\mu$	+0^s.008	—0^s.003	—0^s.002
π	—0″.02±0″.054	+0″.19±0″.040	+0^s.17±0″.035
r_1	±0″.26	±0″.20	±0″.20
	57 obs.	57 obs.	73 obs.

TABLE VII (Continued).

STARS 230, **231**, 232.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*	+48*s*						
1	'94, Apr. 23.7	−27.40	−27.40	+1377	−63	+162	+ 1	0	+17	−235
2	25	27.26	5.41	1481	63	32	1		17	233
3	26	20.23	11.56	1499	46	68	1		17	232
4	May 3	21.79	11.56	1456	50	68	1		18	227
5	6	19.80	11.10	1558	46	65	0		18	224
6	8.6	22.24	17.18	1583	51	101	1		18	222
7	10	20.23	5.09	1658	46	30	1		18	220
8	11	16.12	11.56	1512	37	68	0		18	219
9	12	16.12	11.56	1577	37	68	+ 1		18	218
10	18	−29.43	−14.78	+1190	−68	+ 87	− 1	0	+17	−212
11	94 Aug. 16.4	−19.92	− 7.31	+1204	−46	+ 43	− 4	0	+ 2	−128
12	18	18.39	12.95	1284	42	77	4		+ 2	126
13	23	24.87	7.06	1457	57	42	4		0	121
14	24	26.23	26.23	1460	60	155	4		0	120
15	25.3	22.84	5.87	1588	52	35	3		0	120
16	Sept. 1	23.40	12.90	1450	54	76	4		− 1	113
17	10	16.17	5.14	1441	37	30	5		3	104
18	15	16.17	5.14	1274	37	30	4		4	100
19	17	18.02	12.00	1502	41	71	3		4	98
20	18	19.62	4.70	1343	45	28	4		4	97
21	19	19.92	5.23	1239	46	31	3		4	97
22	23	17.45	4.42	1336	40	26	4		5	93
23	24	23.06	5.68	1278	53	34	4		5	92
24	25	25.33	9.09	1156	58	54	4		5	91
25	26	27.45	27.45	1211	63	162	3		5	90
26	29	−21.60	−21.60	+1291	−50	+127	− 3	0	− 6	− 87

TABLE VII (Continued).

POS. MED. 2164, *prec.*

No.	$D\alpha$ 1895.0 *	τ	Sin $(L-M)$	n_1' ‡	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 49^s			^{s}							
1	+ 259†	—0.69	+0.91	+0.07	+176	1.1	+ 97	10	10	4	3.5
2	235	.68	.89	— .02	+ 84	1.8	+ 76	16	23	5	5
3	307	.68	.88	— .09	+ 13	1.7	+ 11	14	20	5	5
4	266	.66	.83	— .05	+ 48	1.7	+ 41	13	20	5	5
5	371†	.65	.80	— .04	+ 54	0.8	+ 22	12	17	3	2.5
6	430†	.65	.78	— .10	— 8	0.6	— 2	12	15	3	2
7	441	.64	.75	— .22	—130	1.6	—104	14	24	3.5	3.5
8	342	.64	.74	— .12	— 31	1.5	— 23	17	20	3.5	3.5
9	409†	.64	.73	— .08	+ 8	0.9	+ 4	17	20	4.5	4.5
10	+ 13	—0.62	+0.66	+0.21	+291	0.5	+ 73 + 20	8	8	2.5	2
11	+ 71	—0.37	—0.71	+0.15	+ 99	1.7	+ 84	14	21	5	5
12	191†	.37	.73	+ .14	+ 87	0.8	+ 35	15	18	5	5
13	317†	.35	.79	+ .01	— 48	0.8	— 19	9	18	5	5
14	431†	.35	.80	— .10	—159	0.6	— 48	9	9	5	5
15	448†	.35	.81	— .12	—180	0.6	— 54	7	15	4.5	4.5
16	354†	.33	.87	— .02	— 87	0.8	— 35	12	18	5	5
17	322	.30	.93	— .10	—172	1.6	—138	17	24	4	3
18	159	.29	.96	+ .06	— 15	1.8	— 14	17	24	4.5	4.5
19	427†	.29	.97	— .10	—176	0.7	— 62	13	15	4.5	4.5
20	221†	.28	.97	+ .11	+ 33	0.7	+ 12	11	18	3	3
21	120†	.28	.98	+ .21	+132	1.0	+ 66	14	23	5	5
22	220†	.27	.99	+ .11	+ 31	0.7	+ 11	14	21	2.5	2
23	158	.27	.99	+ .06	— 19	1.3	— 12	12	21	2.5	2.5
24	52	.26	0.99	+ .17	+ 91	1.6	+ 73	11	20	5	5
25	212†	.26	1.00	+ .12	+ 40	0.7	+ 14	10	10	5	4
26	+ 272†	—0.25	—1.00	+0.06	— 20	0.7	— 7 — 6	13	13	3.5	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	s							
27	'95, Apr. 22.7	−27.44	−12.89	+1166	−63	+ 76	+ 3	0	+ 8	+106
28	23	23.05	23.05	1399	53	136	3		8	107
29	24	22.37	22.37	1215	52	132	3		8	108
30	26	27.10	12.59	1253	62	74	3		8	110
31	28	27.44	17.56	1446	63	104	3		8	112
32	29	19.95	7.48	1292	46	44	4		8	113
33	30	21.43	12.34	1114	49	73	4		9	113
34	May 6	23.04	3.17	1707	53	19	4		9	118
35	7	27.44	5.60	1279	63	33	4		9	119
36	8	18.15	9.44	1040	42	55	4		9	120
37	9.6	20.84	4.41	1235	48	26	4		9	121
38	13	1.85	5.60	1124	4	33	4		9	125
39	15	−16.40	− 5.60	+1289	−38	+ 33	+ 4	0	+ 8	+127
40	95 Sept. 29.3	−14.68	−14.68	+ 739	−34	+ 87	+ 3	0	−15	+256
41	30	16.20	14.62	905	37	86	3		15	257
42	Oct. 1.2	18.83	6.71	956	43	40	3		16	258
43	2	27.48	10.97	941	63	65	3		16	258
44	3	−25.45	−17.00	+ 806	−58	+100	+ 3	0	−16	+259
45	96 Apr. 20.7	−21.87	−21.87	+1078	−50	+129	+ 7	0	0	+446
46	23	16.20	11.64	675	37	68	7		0	449
47	24	16.52	5.64	678	38	33	7		0	450
48	May 4	27.48	27.48	779	63	162	7		− 1	458
49	5	23.51	5.17	950	54	31	7		1	459
50	6	−19.95	− 5.64	+ 905	−46	+ 33	+ 7	0	− 1	+ 460

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	n_1' ‡	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
27	+ 296	+0.31	+0.91	−0.08	+ 7	1.4	+ 5	10	18	5	4
28	600†	.31	.91	− .27	−183	0.6	− 55	12	12	4	2
29	414	.31	.90	− .19	−104	1.3	− 68	12	12	4.5	4.5
30	386†	.32	.89	− .06	+ 25	0.6	+ 8	9	16	3	2
31	610†	.33	.87	− .28	−197	0.7	− 69	10	14	4	3
32	415†	.33	.87	− .09	− 7	0.8	− 3	13	21	4	4
33	264†	.33	.86	+ .07	+152	0.9	+ 68	11	14	3	2
34	804†	.35	.80	− .47	−395	0.6	−118	6	15	4	4
35	381	.35	.79	− .16	− 86	1.5	− 64	10	22	5	5
36	186†	.35	.78	+ .14	+213	0.7	+ 75	11	16	4.5	3
37	347	.36	.77	− .13	− 57	1.3	− 37	12	21	4.5	3.5
38	291	.37	.72	− .07	− 2	1.8	− 2	24	22	4.5	4.5
39	+ 423	+0.37	+0.69	−0.20	−135	1.5	−101 − 28	16	22	4	3
40	+ 36	+0.75	−1.00	+0.18	+ 81	1.6	+ 65	16	16	5	5
41	199†	.75	1.00	+ .13	+ 31	1.7	+ 26	17	18	5	5
42	198	.75	1.00	+ .02	− 79	1.7	− 67	15	23	5	5
43	188†	.76	1.00	+ .14	+ 40	0.8	+ 16	10	19	5	5
44	+ 94†	+0.76	−1.00	+0.24	+140	0.7	+ 49 + 18	10	15	5	5
45	+ 610†	+1.30	+0.93	−0.28	−211	0.6	− 63	13	13	2.5	2
46	162	1.31	.91	+ .06	+128	1.6	+102	17	20	4.5	4
47	130	1.31	.90	+ .09	+157	1.7	+133	15	22	5	5
48	342	1.34	.81	− .12	− 63	1.2	− 38	10	10	4.5	4
49	392	1.34	.80	− .17	−114	1.5	− 86	12	24	5	4
50	+ 358†	+1.35	+0.79	−0.03	+ 25	1.5	+ 19	14	22	4.5	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta \tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
			s							
51	'96, May 7.6	—16.20	— 6.62	+ 872	—37	+39	+ 7	0	— 1	+461
52	8	—18.94	— 4.98	+ 801	—43	+29	+ 7	0	— 1	+462

1, 26. Daylight illumination. 1, 5, 8, 10. Star 231, ff. 6, 9, 12, 13, 14, 15, 16, 19, 20, 21, 22, 25, 26, 28, 30, 31, 32, 34, 36, 39. Star 231, fff. 10, 34. Star 231, one thread rejected. 33. Star 231, ff; lost on some threads. 34. Star 231. One thread rejected. 37. Star 231, ff; est'd mags., 7.7, 8.7, 7.7. 39, 40, 41, 43, 46, 50, 51. Star 231, ff. 44. Star 231, fff. Est'd mags.: 7.2, 9+, 7.0. 41, 42, 43, 44. Daylight illumination. 52. Star 231, fff.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.‡
3d	7.50	8.47	7.50	3	$+76.63\,x + 15.10\,y + 12.78\,z - 1.54 = 0$
4th	7.2	8.7	7.0	1	$+15.10\,x + 42.35\,y + 9.45\,z - 0.19 = 0$
5th	6.68	8.55	7.05	4	$+12.78\,x + 9.45\,y + 57.95\,z - 5.31 = 0$

† The extreme faintness of star 231 seemed to give rise on many dates to such abnormal values, it was decided to apply a systematic correction to the absolute terms for all dates on which star 231 was marked fff, or on which the broken character of the observation indicates that it was very difficult to observe. The values of $D\alpha$, 1895.0, for all of these dates have a dagger † attached to them.

Accordingly, the values of $D\alpha$, 1895.0, were compared with their mean values for each epoch separately and the residuals were written out in two columns, one containing the residuals for all of those dates on which star 231 was extremely faint, the other containing all of the remaining residuals. The means of the two columns were $-0^s.052 \pm 0^s.018$ and $+0^s.056 \pm 0^s.013$ respectively. The difference of these means shows that star 231 was observed $0^s.054$ late when extremely faint. This result agrees with that derived from independent observations with the screens on miscellaneous stars, $-0^s.026 \sec\delta$. All of the values of $D\alpha$, 1895.0, that are marked with the dagger †, were corrected by $-0^s.11$ in the preceding solution. The mean values of $\frac{1}{2}\sqrt{p}v_1'$ for the observations when star 231 was extremely faint and for the remaining observations, are $+0^s.001$ and $-0^s.008$ respectively.

STARS 233, 234, 235.

				— 70s					
		s							
1	95 Apr. 22.7	— 0.08	— 0.08	— 138	+ 3	— 3	— 5	—1	— 2
2	24	12.89	0.08	735	532	3	5	0	2
3	26	— 0.08	— 0.08	— 78	+ 3	— 3	— 5	—1	— 2

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ ‡	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
51	+ 341	+1.35	+0.78	$-0^s.12$	— 66	1.5	—50	17	23	4	3
52	+ 255†	+1.35	+0.77	+0.07	+124	0.7	+43 + 8	12	22	4	2.5

‡ The absolute terms, n_1', for stars 230, 231, 232, are not multiplied by 10, and are, therefore, of their true magnitude to two decimal places.

Assumed $D\alpha$ 1895.0 $= +49^s.22$ $\quad d.D\alpha = +0^s.008$ $\quad p_z = 54.60$

$x = +0.008$ $\quad d.D\mu = -0.019$ $\quad [pnn.3] = 0.74$

$y = -0.019$ $\quad [pvv] = 0.77$

$z = +0.093$ $\quad \pi = +0''.36 \pm 0''.043$ $\quad r = \pm 0^s.041$

A solution was made also without applying any corrections to the values of $D\alpha$, 1895.0 on account of the faintness of star 231, with the following results:—

Assumed $D\alpha$ 1895.0 $= +49^s.28$ $\quad d.D\alpha = -0^s.023$ $\quad p_z = 54.60$

$d.D\mu = -0.016$ $\quad [pnn.3] = 0.84$

$[pvv] = 0.87$

$\pi = +0''.32 \pm 0''.046$ $\quad r = \pm 0^s.044$

The same equations, uncorrected, were solved also in two groups, as follows:—

	Obs. 1—39.	Obs. 40—52.
($y = -0^s.0159$ assumed from the preceding complete solution.)		
$d.D\alpha$	$-0^s.015$	$-0^s.041$
π	$+0''.34 \pm 0''.054$	$+0''.28 \pm 0''.089$
r	$\pm 0^s.043$	$\pm 0^s.051$

BRADLEY 2388.

	— 70s										
1	— 146	+0.31	+0.93	$+0^s.16$	+ 2	2.0	+ 2	25	25	5	5
2	213	0.31	0.92	+0.83	+ 69	1.7	+59	18	25	4	2.5
3	— 86	+0.32	+0.91	—0.44	— 58	1.3	—38	25	25	3	1.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
4	'95, Apr. 27.7	— 0.08	— 0.08	— 160	+ 3	— 4	— 5	0	— 2	
5	28	.08	.08	78	3	3	6	—1	2	
6	29	.08	.08	114	4	3	7	0	2	
7	30	0.08	.08	110	3	3	7	1	2	
8	May 6	12.89	.08	703	532	4	7	0	2	
9	7	0.08	.08	130	3	3	7	1	2	
10	8	.08	.08	101	3	3	8	0	2	
11	9	.08	.08	123	4	3	8	1	2	
12	13.6	.08	.08	103	3	4	7	0	2	
13	15	— 0.08	— 0.08	— 193	+ 3	— 3	— 7	—1	— 2	
14	95 Sept. 27.3	— 0.12	— 0.12	— 236	+ 5	— 5	— 6	—1	+15	
15	29	5.64	.12	334	233	5	6	0	15	
16	30	0.12	.12	141	5	5	6	1	15	
17	Oct 1	— 0.12	— 0.12	126	+ 5	— 5	6	0	15	
18	2	+ 1.57	+ 1.57	90	— 65	+65	6	1	15	
19	3.2	— 0.12	— 0.12	177	+ 5	— 5	6	0	15	
20	5	— 0.12	— 0.12	— 66	+ 5	— 5	— 6	—1	+15	
21	96 Apr. 13.7	— 7.41	— 1.18	— 369	+306	—49	—12	—1	+ 9	
22	20	0.12	0.12	156	5	5	13	2	9	
23	21	.12	.12	100	5	5	13	1	9	
24	23	.12	.12	140	5	5	12	2	9	
25	24	0.21	.21	75	9	9	12	1	9	
26	May 4	5.64	.12	323	233	5	12	2	9	
27	5	0.12	.12	142	5	5	12	1	9	
28	6	0.12	.12	154	5	5	12	2	9	
29	7	— 0.12	— 0.12	— 119	+ 5	— 5	—12	—1	+ 9	

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
4	— 168	+0.32	+0.91	+0.38	+ 24	1.9	+23	25	25	4.5	4
5	87	.33	.90	— .43	— 57	1.3	—37	25	25	3	2
6	122	.33	.89	— .08	— 22	2.0	—22	25	25	4.5	4.5
7	120	.33	.88	— .10	— 24	1.9	—23	25	25	4.5	4
8	184	.35	.83	+ .54	+ 41	1.8	+37	18	25	4.5	4.5
9	140	.35	.82	+ .10	— 3	2.0	— 3	25	25	5	5
10	111	.35	.81	— .19	— 32	1.8	—29	25	25	4.5	3.5
11	133	.36	.80	+ .03	— 9	1.8	— 8	25	25	4.5	3.5
12	113	.37	.75	— .17	— 29	1.7	—25	25	25	2.5	3
13	— 203	+0.37	+0.73	+0.73	+ 61	1.7	+52	25	25	3	2.5
							— 1				
14	— 228	+0.74	—0.99	+0.98	+104	1.8	+94	25	25	5	4.5
15	97	.75	1.00	— .33	— 27	1.9	—26	25	25	5	5
16	133	.75	1.00	+ .03	+ 9	2.0	+ 9	25	25	5	5
17	117	.75	1.00	— .13	— 6	2.0	— 6	25	25	5	5
18	82	.76	1.00	— .48	— 42	2.0	—42	24	24	5	5
19	168	.76	1.00	+ .38	+ 45	2.0	+45	25	25	5	5
20	— 58	+0.76	—1.00	—0.72	— 66	2.0	—66	25	25	5	5
							+ 1				
21	— 116	+1.28	+0.97	—0.14	— 11	1.4	— 8	20	23	5	4.5
22	162	1.30	.95	+ .32	+ 36	1.2	+22	25	25	2.5	2
23	105	1.31	.94	— .25	— 21	1.0	—10	25	25	1	0.5
24	145	1.31	.93	+ .15	+ 19	2.0	+19	25	25	4.5	4.5
25	79	1.31	.92	— .51	— 47	1.9	—45	24	25	5	4
26	100	1.34	.84	— .30	— 25	1.8	—22	22	25	4.5	4.5
27	146	1.34	.83	+ .16	+ 21	1.9	+20	25	25	5	4
28	159	1.35	.82	+ .29	+ 35	1.9	+33	25	25	5	4
29	— 123	+1.35	+0.81	—0.07	— 1	1.9	— 1	25	25	5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	$D1$	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta \tan \delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
30	'96, May 8.7	— 0.12	— 0.12	— 142	+ 5	— 5	—13	—2	+ 9	
31	10.6	— 5.64	— 0.12	— 315	+233	— 5	—13	—1	+ 9	

8. Light clouds and fog. 9. *Comes* at 220° ? 14. Clouds? Est'd mags.: 8.3, 7.3, 7.5.
20. Haze and clouds. 21, 22, 23. Daylight illumination. 21. Star 223, ff; star 235, fff.
22. Star 235, image 0.5 in quality at times. 23. Star 233, f; star 235, ff.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
1st	7.38	5.66	7.02	4	$+99.37\,x + 76.07\,y + 35.28\,z + 2.43 = 0$
2d	7.32	5.80	7.23	6	$+76.07\,x + 75.82\,y + 27.73\,z - 1.30 = 0$
3d	7.30	5.35	7.12	8	$+35.28\,x + 27.73\,y + 80.25\,z + 5.15 = 0$

STARS 236, 237, 238.

				+ 58s						
1	'94 May 3.7	— 0.04	— 0.04	+ 306	0	0	— 3	0	— 8	+ 65
2	8	.04	0.04	337	0	0	2	0	9	64
3	10	.04	0.04	403	0	0	2	0	9	64
4	11	.04	2.59	321	0	+ 1	2	+1	9	63
5	12	.04	0.04	302	0	0	2	0	9	63
6	25.6	.04	.04	288	0	0	3	0	9	59
7	31	— .04	.04	338	0	0	1	0	10	57
8	June 3	+ 0.64	— 0.04	+ 311	+ 2	0	— 4	+1	—10	+ 57
9	94 Aug. 23.4	+ 0.42	— 0.09	+ 373	+ 1	0	+14	0	—10	+ 34
10	25	— 0.09	0.09	409	0	0	13	0	10	34
11	30	+ 1.74	14.38	476	+ 6	+ 7	17	0	10	32
12	Sept. 1	— 0.09	5.61	356	0	3	17	+1	10	32
13	10.3	.09	0.09	384	0	0	18	0	9	30
14	15	— .09	.09	331	0	0	13	0	9	28
15	17	+ .50	.09	424	+ 2	0	13	0	9	28
16	18	— .09	.09	354	0	0	13	+1	9	28
17	19	0.09	0.09	350	0	0	13	0	8	28
18	24	— 1.27	— 1.27	+ 384	— 4	+ 1	+15	0	— 8	+ 26

Table VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
				^{s}							
30	— 148	+1.35	+0.80	+0.18	+ 24	1.7	+20	25	25	4	2.5
31	— 92	+1.36	+0.78	—0.38	— 32	1.6	—26	22	25	3.5	2.5
							0				

Assumed $D\alpha$ 1895.0 $= -70^s.130$ $\quad d.D\alpha = -0^s.014$ $\quad p_z = 67.70$

$x = -0.141$ $\quad d.D\mu = +0.018$ $\quad [pnn.3] = 0.1469$

$y = +0.183$ $\quad [pvv] = 0.1496$

$z = -0.065$ $\quad \pi = -0''.04 \pm 0''.038$ $\quad r = \pm 0^s.024$

31 b Aquilae.

	+ 58^s			^{s}							
1	+ 360	—0.66	+0.91	+0.12	+ 34	1.9	+32	25	25	3.5	4
2	390	.65	.87	— .18	+ 4	1.9	+ 4	25	25	4 5	4
3	456	.64	.85	— .84	— 62	1.3	—40	25	25	2	1
4	375	.64	.84	— .03	+ 19	1.5	+14	25	23	2.5	2.5
5	354	.64	.83	+ .18	+ 40	2.0	+40	25	25	5	5
6	335	.60	.68	+ .37	+ 58	1.7	+49	25	25	2.5	3
7	384	.58	.62	— .12	+ 9	1.7	+ 8	25	25	3.5	3.5
8	+ 357	—0.58	+0.57	+0.15	+ 35	1.1	+19	24	25	3	0.5
							+16				
9	+ 412	—0.35	—0.68	—0.40	— 25	2.0	—25	24	25	5	5
10	446	.35	.71	—0.74	— 59	1.7	—50	25	25	3	3
11	528	.34	.77	—1.56	—141	0.7	—49	22	16	4	4
12	399	.33	.78	—0.27	— 13	1.9	—12	25	22	5	5
13	423	.30	.87	— .51	— 37	1.6	—30	25	25	4	2.5
14	363	.29	.91	+ .09	+ 23	1.8	+21	25	25	4	4
15	458	.29	.92	— .86	— 72	1.6	—58	24	25	2.5	3
16	387	.28	.93	— .15	— 1	1.7	— 1	25	25	3	2.5
17	383	.28	.93	— .11	+ 3	2.0	+ 3	25	25	4.5	4.5
18	+ 414	—0.27	—0.96	—0.42	— 28	1.0	—14	24	24	1.5	1

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
19	'94, Sept. 25.3	— 0.09	— 0.09	+ 359	0	0	+13	0	— 8	+ 26
20	27	.09	.09	367	0	0	13	+1	8	25
21	28	.09	.09	340	0	0	13	0	8	25
22	29	— 0.09	— 0.09	+ 359	0	0	+12	0	— 7	+ 25
23	95 Apr. 30.7	— 0.08	—15.07	+ 451	0	+ 8	—15	0	+14	— 32
24	May 7	.08	0.08	408	0	0	15	0	14	32
25	8	.08	0.08	443	0	0	15	+1	13	34
26	9	— 0.08	0.08	440	0	0	16	0	13	34
27	13	+ 1.07	4.82	488	+ 4	+ 2	16	0	13	36
28	15	— 0.08	0.08	337	0	0	16	0	13	36
29	19.6	.08	.08	487	0	0	13	1	13	37
30	21	.08	.08	417	0	0	13	0	13	38
31	23	.08	.08	476	0	0	13	0	12	39
32	24	— 0.08	— 0.08	+ 431	0	0	—13	+1	+12	— 39
33	95 Sept. 27.3	— 0.12	— 0.12	+ 432	0	0	—14	0	+14	— 72
34	29	0.12	0.12	425	0	0	13	0	14	72
35	30	5.64	1.89	410	—20	+ 1	12	+1	14	73
36	Oct. 1	0.12	0.12	421	0	0	13	0	14	73
37	2	0.12	.12	409	0	0	13	0	15	73
38	3	— 0.12	.12	449	0	0	13	0	15	74
39	5	+ 1.65	.12	428	+ 6	0	14	1	15	74
40	9.2	— 0.12	.12	454	0	0	14	0	16	75
41	12	.12	.12	440	0	0	15	0	16	76
42	13	.12	.12	533	0	0	15	2	16	76
43	16	.12	.12	367	0	0	16	2	17	77
44	17	0.12	0.12	461	0	0	16	2	17	78
45	21	—11.13	5.64	516	—39	3	14	2	17	79
46	22	+ 1.65	12.93	489	+ 6	6	16	2	18	79
47	23	—18.36	—13.92	+ 464	—64	+ 7	—16	+2	+18	— 80

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
19	+ 390	—0.26	—0.97	—0.18	— 4	2.0	— 4	25	25	4.5	4.5
20	398	.26	.97	— .26	— 13	2.0	—13	25	25	5	5
21	370	.26	.98	+ .02	+ 15	1.9	+14	25	25	5	4
22	+ 389	—0.25	—0.98	—0.17	— 4	1.7	— 3	25	25	3.5	3
							—14				
23	+ 426	+0.33	+0.93	—0.54	— 42	1.5	—32	25	15	4	2.5
24	375	.35	.87	— .03	+ 8	2.0	+ 8	25	25	5	5
25	408	.35	.87	— .36	— 25	1.7	—21	25	25	4.5	3
26	403	.36	.86	— .31	— 20	1.8	—18	25	25	4.5	3.5
27	455	.37	.82	— .83	— 72	1.1	—40	23	20	2	1
28	298	.37	.80	+ .74	+ 85	1.9	+81	25	25	4.5	4
29	451	.38	.75	— .79	— 68	1.3	—44	25	25	3	1.5
30	379	.39	.73	— .07	+ 4	2.0	+ 4	25	25	4.5	4.5
31	436	.39	.71	— .64	— 53	2.0	—53	25	25	4.5	4.5
32	+ 392	+0.40	+0.71	—0.20	— 9	2.0	— 9	25	25	4.5	4.5
							—12				
33	+ 360	+0.74	—0.97	+0.12	+ 14	1.9	+13	25	25	4.5	4
34	354	.75	.98	+ .18	+ 20	2.0	+20	25	25	5	5
35	321	.75	.98	+ .51	+ 53	1.9	+50	22	24	5	5
36	349	.75	.99	+ .23	+ 25	2.0	+25	25	25	5	5
37	338	.76	.99	+ .34	+ 36	2.0	+36	25	25	5	5
38	377	.76	0.99	— .05	— 3	2.0	— 3	25	25	5	5
39	362	.76	1.00	+ .10	+ 12	2.0	+12	24	25	5	5
40	381	.77	1.00	— .09	— 7	2.0	— 7	25	25	5	5
41	365	.78	1.00	+ .07	+ 9	2.0	+ 9	25	25	5	5
42	460	.79	1.00	— .88	— 86	2.0	—86	25	25	4	4.5
43	293	.79	0.99	+ .79	+ 81	1.7	+69	25	25	3	3.5
44	386	.80	.99	— .14	— 12	2.0	—12	25	25	5	5
45	406	.81	.98	— .34	— 32	1.2	—19	18	22	3	2.5
46	426	.81	.98	— .54	— 52	1.2	—31	24	18	3	2.5
47	+ 331	+0.81	—0.98	+0.41	+ 43	1.7	+36	15	17	5	5
							+ 7				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
48	'96, May 4.7	— 0.12	—12.93	+ 522	0	+ 6	—25	+1	+36	—129
49	5	.12	0.12	473	0	0	25	1	35	132
50	6	.12	0.12	500	0	0	25	1	35	132
51	7	0.12	0.12	479	0	0	27	1	35	132
52	8	— 2.14	— 7.31	+ 525	— 7	+ 4	—27	+1	+35	—133

2, 5. Light clouds. 11. Star 236, f; star 237, fff. 13. Images considerably agitated. 23. Daylight illumination. 45, 46, 47. Daylight illumination. 45, 46. Star 236, fff. 47. Star 236, ff.

Epoch.	Estimated Magnitudes.			No. of Ests.
3d	7.35	7.62	7.32	3
4th	7.65	7.77	7.48	11
5th	7.60	7.82	7.52	4

Normal Equations.

$+163.33\,x + 47.84\,y - 31.58\,z - 15.78 = 0$

$+ 47.84\,x + 77.78\,y - 11.23\,z + 2.03 = 0$

$- 31.58\,x - 11.23\,y + 130.70\,z - 0.27 = 0$

STARS 239, **240**, 241.

		s	s	+ 56s						
1	'94, May 8.7	— 0.03	—14.70	+ 614	— 8	+4082	+ 3	0	+42	+126
2	10	0.03	6.45	2367	8	1791	3	0	43	125
3	11	0.03	6.45	2902	8	1791	3	0	43	124
4	12	3.11	6.45	3757	779	1791	+ 3	+1	44	124
5	18	5.56	19.87	414	1392	5518	— 6	0	46	121
6	25.6	3.11	6.45	3829	779	1791	+ 5	0	48	117
7	31	0.03	6.45	3011	8	1791	2	0	49	114
8	June 2	30.96	16.14	7995	7752	4482	2	+1	50	113
9	3	8.21	17.40	2115	2055	4832	+ 6	0	50	112
10	6	— 0.03	— 6.45	+2969	— 8	+1791	— 3	0	+50	+110
11	94 Aug. 23.4	— 0.08	— 6.50	+2962	— 20	+1805	—22	0	+32	+ 69
12	25	.08	6.50	2940	20	1805	22	0	30	67
13	Sept. 1	.09	10.72	1830	23	2977	28	0	26	64
14	10.3	— 0.24	7.92	2594	— 60	2199	30	+1	20	60
15	15	+ 1.83	— 7.37	+2279	+ 459	+2047	—22	0	+17	+ 57

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
48	+ 411	+1.34	+0.89	−0.39	− 38	1.9	−36	25	18	4.5	4.5
49	352	1.34	.88	+ .20	+ 21	1.9	+20	25	25	5	4
50	379	1.35	.87	− .07	− 6	2.0	− 6	25	25	5	4.5
51	356	1.35	.87	+ .16	+ 17	1.7	+14	25	25	4.5	3.5
52	+ 398	+1.35	+0.86	−0.26	− 25	1.6	−20	23	18	4	3.5
							− 6				

Assumed $D\alpha$ 1895.0 = $+58^s.372$ $d.D\alpha = +0^s.013$ $p_z = 124.54$

$x = + 0.132$ $d.D\mu = -0.010$ $[pnn.3] = 0.2220$

$y = - 0.103$ $[pvv] = 0.2196$

$z = + 0.025$ $\pi = +0''.02 \pm 0''.030$ $r = \pm 0^s.023$

σ DRACONIS.

	+ 60s			s							
1	+ 859	−0.65	+0.89	+0.41	+ 50	1.5	+ 38	21	11	4.5	4.5
2	821	.64	.87	+ .79	+ 88	1.4	+ 62	21	17	3.5	3
3	855	.64	.87	+ .45	+ 54	1.5	+ 40	21	17	4	3.5
4	941	.64	.86	−0.41	− 33	1.7	− 28	19	17	5	5
5	701	.62	.80	+1.99	+204	1.4	+143	22	14	3	3
6	1010	.60	.72	−1.10	−109	1.5	− 82	19	17	3.5	3.5
7	959	.58	.66	−0.59	− 61	1.5	− 46	21	17	4	3
8	891	.58	.63	+0.09	+ 5	1.3	+ 3	8	17	3.5	3
9	1060	.58	.62	−1.60	−164	1.5	−123	22	16	2.5	3
10	+ 909	−0.57	+0.57	−0.09	− 17	1.6	− 14	21	17	3.5	4
							− 1				
11	+ 826	−0.35	−0.64	+0.74	− 1	1.7	− 1	21	17	5	5
12	800	.35	.67	+1.00	+ 23	1.7	+ 20	21	17	4.5	4.5
13	846	.33	.74	+0.54	− 26	1.5	− 20	19	12	5	5
14	784	.30	.84	+1.16	+ 30	1.7	+ 26	20	16	4.5	4.5
15	+ 837	−0.29	−0.88	+0.63	− 25	1.7	− 21	20	15	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
16	'94, Sept. 17.3	— 0.09	— 7.37	+2723	— 23	+2047	—22	0	+15	+ 56
17	18	+ 1.83	7.37	2298	+ 459	2046	22	0	15	55
18	19	+ 3.67	7.37	1703	+ 919	2047	22	+1	14	55
19	24	— 0.09	7.37	2778	— 23	2046	25	0	11	52
20	25	+ 7.22	7.37	988	+1808	2047	22	0	10	52
21	27	— 0.09	7.37	2664	— 23	2046	21	0	9	51
22	28	0.09	7.37	2844	23	2047	21	+1	8	50
23	29	— 0.09	— 7.37	+2703	— 23	+2046	—21	0	+ 8	+ 49
24	95 May 7.7	— 0.07	— 6.49	+3080	— 18	+1802	+26	0	+ 4	— 68
25	8	— 0.07	10.94	1976	— 18	3038	26	+1	5	68
26	9	+ 4.98	6.49	1881	+1247	1802	27	0	5	69
27	13	— 0.07	6.49	3284	— 18	1802	27	1	7	71
28	15	+ 1.68	6.49	2856	+ 421	1802	27	0	7	72
29	19	3.68	6.49	2177	921	1802	26	1	9	74
30	21	+ 5.07	6.49	1944	+1270	1802	25	0	9	76
31	23.6	— 0.07	6.49	3132	— 18	1802	24	1	10	77
32	24	+ 1.68	6.49	2980	+ 421	1802	23	0	10	77
33	26	3.36	6.49	2420	841	1802	21	1	11	78
34	27	4.98	6.49	1950	1247	1802	22	0	11	79
35	28	+ 3.51	— 6.90	+2134	+ 878	+1916	+31	+1	+11	— 79
36	95 Sept. 27.3	— 0.11	— 6.53	+3205	— 28	+1813	+23	0	—27	—143
37	29	0.12	7.40	2978	30	2055	23	+1	29	145
38	30	— 6.53	6.53	4837	—1636	1814	20	0	29	145
39	Oct. 1	+ 3.32	6.53	2322	+ 831	1813	21	1	30	146
40	2	3.32	6.53	2293	831	1814	21	0	31	146
41	3	3.32	6.53	2455	831	1813	21	1	32	146
42	5	1.64	6.53	2711	411	1814	21	0	33	148
43	9	+ 1.64	— 6.53	+2751	+ 411	+1813	+21	+1	—36	—150

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
16	+ 796	—0.29	—0.90	+1.04	+ 15	1.6	+ 12	19	15	4.5	4.5
17	851	.28	.91	+0.49	— 41	1.4	— 29	20	15	2	3
18	717	.28	.91	+1.83	+ 93	1.6	+ 74	21	15	5	5
19	839	.27	.95	+0.61	— 30	1.5	— 22	19	15	3.5	4
20	883	.26	.95	+0.17	— 73	1.4	— 51	15	15	3.5	4
21	726	.26	.96	+1.74	+ 83	1.6	+ 66	19	15	5	5
22	906	.26	.97	—0.06	— 98	1.6	— 78	19	15	4.5	4
23	+ 762	—0.25	—0.97	+1.38	+ 46	1.4	+ 32	19	15	3.5	3
							+ 1				
24	+ 826	+0.35	+0.90	+0.74	+136	1.7	+116	21	17	5	5
25	960	.35	.89	—0.60	+ 1	1.5	+ 1	21	14	4	3
26	893	.36	.88	+0.07	+ 69	1.7	+ 59	24	17	5	4
27	1032	.37	.85	—1.32	— 72	1.5	— 54	21	17	4.5	3
28	1041	.37	.83	—1.41	— 83	1.6	— 66	22	17	4.5	4
29	862	.38	.79	+0.38	+ 95	1.2	+ 57	21	17	3	2
30	974	.39	.77	—0.74	— 19	1.7	— 16	23	17	5	5
31	874	.39	.74	+0.26	+ 79	1.5	+ 59	21	17	4	3.5
32	1159	.40	.74	—2.59	—205	1.7	—174	22	17	4.5	4.5
33	1018	.40	.72	—1.18	— 65	1.6	— 52	23	17	4	4
34	953	.40	.71	—0.53	0	1.6	0	24	17	4	3
35	+ 892	+0.41	+0.69	+0.08	+ 59	1.6	+ 47	22	16	4.5	3.5
							— 2				
36	+ 843	+0.74	—0.96	+0.57	+ 17	1.7	+ 14	21	17	5	4.5
37	853	.75	.97	+ .47	+ 7	1.7	+ 6	19	15	5	5
38	861	.75	.97	+ .39	— 1	1.7	— 1	17	17	5	5
39	812	.75	.98	+0.88	+ 48	1.7	+ 41	23	17	5	5
40	782	.76	.98	+1.18	+ 78	1.7	+ 66	23	17	5	5
41	943	.76	.98	—0.43	— 83	1.7	— 71	23	17	5	5
42	776	.76	0.99	+1.24	+ 83	1.7	+ 71	22	17	5	5
43	+ 811	+0.77	—1.00	+0.89	+ 48	1.7	+ 41	22	17	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
44	'95, Oct. 12.3	— 0.11	— 7.95	+2880	— 28	+2208	+25	0	—38	—152
45	13.2	6.53	10.98	3654	1635	3049	25	+2	39	152
46	16	0.11	6.53	3191	28	1813	27	2	41	154
47	17	0.11	6.53	3292	28	1814	26	2	41	154
48	18	16.20	16.25	4691	4052	4513	25	3	42	155
49	21	0.11	6.53	3274	28	1813	24	2	44	157
50	22	1.63	6.53	3657	408	1813	27	2	45	157
51	23	0.11	6.53	3309	28	1814	27	2	45	158
52	25	6.53	6.53	4838	1635	1813	28	3	46	159
53	26	— 6.53	— 6.53	+4852	—1635	+1813	+28	+2	—47	—159
54	96 May 5.7	— 6.53	— 6.53	+5061	—1635	+1813	+43	+1	—32	—262
55	6	— 0.12	7.40	3182	— 30	2055	43	1	32	262
56	7	+ 4.94	6.53	2137	+1237	1813	47	1	31	263
57	10	+ 3.32	6.53	2595	+ 831	1813	47	1	30	264
58	28.6	— 1.63	— 6.53	+4053	— 409	+1813	+44	+1	—23	—274

24. Daylight illumination. 36. Clouds. Est'd mags.: 8.3, 7.8 to 8.3, 8.0. 48. Clouds. Star 241, ff and fff. 51, 52, 53, 54, 55. Daylight illumination. 52. Thin clouds. 53. Star 239, ff.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
3d	7.43	7.28	6.88	4	$+144.83\,x + 43.04\,y - 22.38\,z + 14.24 = 0$
4th	7.66	7.51	7.13	10	$+ 43.04\,x + 68.65\,y - 14.24\,z - 19.81 = 0$
5th	7.58	7.40	7.32	4	$- 22.38\,x - 14.24\,y + 111.80\,z - 69.29 = 0$

STARS 242, 243, 244.

				— 104*s*						
		s	*s*							
1	'94, May 8.7	— 0.83	—17.84	— 129	+ 4	— 75	0	0	— 7	+ 46
2	10	— 5.34	—10.89	198	+ 29	— 46	0	—1	7	45
3	11	+ 5.48	+ 5.48	306	— 30	+ 23	0	1	7	45
4	12	—18.28	— 5.56	380	+ 99	— 23	+ 1	0	7	45
5	18	+ 0.92	+ 1.56	— 300	— 5	+ 7	— 1	—1	— 7	+ 44

TABLE VII (Continued).

No.	$D\alpha$1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
				^{s}							
44	+ 895	+0.78	—1.00	+0.05	— 35	1.7	— 30	21	16	4.5	4.5
45	904	.79	1.00	— .04	— 44	1.6	— 35	17	14	5	4.5
46	810	.79	1.00	+ .90	+ 51	1.7	+ 43	21	17	5	4.5
47	911	.80	1.00	— .11	— 51	1.7	— 43	21	17	5	5
48	983	.80	1.00	— .83	—122	0.7	— 43	17	10	5	3.5
49	884	.81	0.99	+ .16	— 22	1.5	— 16	21	17	3.5	3.5
50	889	.81	.99	+ .11	— 27	1.2	— 16	20	17	2	1.5
51	921	.81	.98	— .21	— 58	1.7	— 49	21	17	5	5
52	842	.82	.98	+ .58	+ 22	1.7	+ 19	17	17	4.5	4.5
53	+ 854	+0.82	—0.98	+0.46	+ 10	1.7	+ 8	17	17	5	5
							0				
54	+ 989	+1.34	+0.91	—0.89	+ 26	1.7	+ 22	17	17	5	4.5
55	957	1.35	.90	— .57	+ 57	1.7	+ 48	19	15	5	4.5
56	941	1.35	.89	— .41	+ 72	1.6	+ 58	24	17	4	4
57	993	1.36	.87	—0.93	+ 20	1.6	+ 16	23	17	4.5	4
58	+1205	+1.41	+0.68	—3.05	—202	1.5	—152	20	17	4	3
							— 2				

Assumed $D\alpha$ 1895.0 $= +60^s.900$ $\quad d.D\alpha = -0^s.015$ $\quad p_z = 107.31$

$x = -0.151$ $\quad d.D\mu = +0.052$ $\quad [pnn.3] = 0.8012$

$y = +0.519$ $\quad [pvv] = 0.8000$

$z = +0.656$ $\quad \pi = +0''.17 \pm 0''.021$ $\quad r = \pm 0^s.041$

α AQUILAE.

	— 104^s										
				^{s}							
1	— 161	—0.65	+0.91	—0.59	— 15	1.6	—12	23	14	4.5	4
2	178	.64	.90	— .42	+ 2	1.4	+ 1	16	19	3	3
3	276	.64	.89	+ .56	+100	1.6	+80	22	22	4	3
4	265	.64	.88	+ .45	+ 88	1.8	+79	15	22	5	5
5	— 263	—0.62	+0.83	+0.43	+ 83	1.2	+50	23	24	3	1.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
6	'94, May 25.6	− 5.56	− 5.56	− 227	+30	− 23	+ 1	0	− 6	+ 42
7	31	7.07	7.07	244	38	30	0	−1	6	41
8	June 2	− 7.07	− 6.31	267	+38	− 27	0	0	5	41
9	3	+ 0.79	+ 0.79	214	− 4	+ 3	+ 1	−1	5	40
10	6	− 5.56	− 5.56	− 220	+30	− 23	0	0	− 5	+ 40
11	94 Sept. 10.4	+ 5.43	− 0.09	− 270	−29	0	− 3	−1	+ 8	+ 21
12	15.3	− 0.09	− 0.09	296	0	0	2	0	8	21
13	18	+ 0.42	+ 0.42	88	2	+ 2	2	1	8	20
14	19	+ 1.05	+ 1.05	201	− 6	+ 4	2	0	8	20
15	24	− 4.24	− 4.24	230	+23	− 18	2	1	9	19
16	25	5.61	0.09	369	+30	0	2	0	9	19
17	27	− 0.09	− 0.09	− 285	0	0	− 2	−1	+ 9	+ 18
18	95 May 7.7	+ 3.68	+ 3.68	− 106	−20	+ 15	+ 2	−1	−10	− 24
19	8	− 9.08	− 9.08	104	+49	− 38	2	1	10	25
20	9	0.08	0.08	188	0	0	3	1	10	25
21	13	8.73	8.73	47	47	37	2	1	10	25
22	15	5.60	5.60	50	30	24	2	1	10	26
23	19	11.41	11.41	62	62	48	2	0	10	27
24	20	0.08	0.08	65	0	0	2	1	10	27
25	21	0.08	0.08	75	0	0	2	1	9	27
26	23.6	10.93	10.93	174	59	46	2	1	9	27
27	24	0.08	0.08	93	0	0	2	1	9	28
28	26	2.53	2.53	116	14	11	2	0	9	28
29	27	0.76	0.08	88	4	0	2	1	9	28
30	28	1.85	1.85	160	10	8	3	1	9	28
31	30	− 5.60	− 5.60	− 162	+30	− 24	+ 3	−1	− 9	− 29

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
6	— 183	—0.60	+0.75	—0.37	0	1.6	0	22	22	3.5	3.5
7	202	.58	.69	— .18	+ 16	0.8	+ 6	21	21	3	3
8	220	.58	.67	.00	+ 34	1.6	+27	21	20	3.5	3
9	180	.58	.66	— .40	— 7	1.0	— 4	17	17	2.5	3
10	— 178	—0.57	+0.62	—0.42	— 10	1.3	— 6	22	22	2.5	2
							+22				
11	— 274	—0.30	—0.81	+0.54	+ 24	1.6	+19	22	25	4	3
12	269	.29	.86	+0.49	+ 17	1.7	+14	25	25	3	3
13	63	.28	.88	—1.57	—190	1.0	—95	24	24	2	2.5
14	177	.28	.89	—0.43	— 77	1.0	—38	23	23	4.5	4.5
15	300	.27	.93	+ .80	+ 45	1.0	+22	20	20	2	2
16	313	.26	.93	+ .93	+ 58	1.9	+55	22	25	4.5	4.5
17	— 261	—0.26	—0.95	+0.41	+ 5	2.0	+ 5	25	25	5	5
							— 2				
18	— 144	+0.35	+0.92	—0.76	— 42	1.8	—38	21	21	5	4.5
19	127	.35	.91	—0.93	— 60	1.5	—45	20	20	4	3
20	221	.36	.91	+0.01	+ 34	1.5	+26	25	25	5	4.5
21	71	.37	.87	—1.49	—117	0.7	—41	19	19	3	1.5
22	79	.37	.86	—1.41	—110	1.0	—55	22	22	3.5	2.5
23	83	.38	.82	—1.37	—107	0.7	—37	17	17	3	1
24	101	.39	.81	—1.19	— 90	1.9	—86	25	25	4.5	4
25	110	.39	.80	—1.10	— 81	2.0	—81	25	25	5	5
26	196	.39	.78	—0.24	+ 4	1.8	+ 4	19	19	4.5	4.5
27	129	.40	.78	—0.91	— 63	2.0	—63	25	25	5	5
28	148	.40	.75	—0.72	— 45	0.8	—18	20	20	3	1.5
29	120	.40	.74	—1.00	— 74	1.7	—63	24	25	4	3
30	193	.41	.73	—0.27	— 1	2.0	— 1	24	24	5	4.5
31	— 192	+0.41	+0.71	—0.28	— 3	1.9	— 3	22	22	5	5
							—36				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
32	'95, Sept. 27.3	—14.04	—14.04	— 94	+ 76	—59	+ 2	—4	+ 6	— 52
33	29	0.12	0.12	204	1	1	2	4	6	52
34	30	0.12	0.12	161	1	1	2	4	6	52
35	Oct. 1	9.12	9.12	233	49	38	2	4	6	53
36	2	9.12	9.12	282	49	38	2	4	6	53
37	3	18.36	18.36	85	99	77	2	4	6	53
38	5	0.12	— 0.12	202	1	— 1	2	4	6	54
39	9	.12	+ 0.89	286	0	+ 4	2	4	6	54
40	12	.12	— .12	212	0	— 1	2	4	6	55
41	13	.12	.12	17	1	1	2	4	6	55
42	16	.12	.12	258	0	1	2	4	6	55
43	17.2	0.12	0.12	195	1	1	2	4	6	56
44	21	3.98	3.98	109	21	17	2	4	6	57
45	22	3.72	3.72	237	20	16	2	4	6	57
46	23	0.12	0.12	202	1	1	3	4	6	57
47	25	5.64	0.12	266	30	1	3	4	6	57
48	26	0.12	0.12	217	1	1	3	4	6	58
49	29	5.64	5.64	284	30	24	3	4	6	58
50	Nov. 4	—23.43	— 0.12	— 363	+127	— 1	+ 3	—3	+ 6	— 59
51	96 May 6.7	— 0.12	— 5.64	— 128	+ 1	—24	+ 4	—2	—14	— 95
52	7	.12	0.12	191	0	1	5	2	14	95
53	10	.12	.12	203	1	0	4	2	14	96
54	23	.21	.21	42	1	1	4	2	12	98
55	26	.12	.12	67	1	1	4	2	12	98
56	28	0.12	.12	133	0	0	4	2	12	99
57	30	— 5.64	— 0.12	— 209	+ 30	— 1	+ 4	—2	—12	— 99

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
32	— 125	+0.74	—0.95	—0.95	—142	1.0	— 71	17	17	4.5	4
33	252	.75	.96	+ .32	— 16	2.0	— 16	25	25	5	5
34	209	.75	.96	— .11	— 59	2.0	— 59	25	25	5	5
35	271	.75	.97	+0.51	+ 3	1.8	+ 3	20	20	5	5
36	320	.76	.97	+1.00	+ 52	1.8	+ 47	20	20	5	5
37	112	.76	.97	—1.08	—156	0.7	— 55	15	15	5	5
38	252	.76	.98	+0.32	— 16	1.8	— 14	19	19	5	5
39	332	.77	0.99	+1.12	+ 63	2.0	+ 63	25	24	5	5
40	264	.78	1.00	+0.44	— 5	2.0	— 5	25	25	5	5
41	68	.79	1.00	—1.52	—201	1.0	—100	25	25	4.5	4
42	310	.79	1.00	+0.90	+ 41	2.0	+ 41	25	25	4	4.5
43	247	.80	1.00	+ .27	— 22	2.0	— 22	25	25	5	5
44	158	.81	1.00	— .62	—111	0.8	— 44	22	22	3	2.5
45	286	.81	1.00	+ .66	+ 17	1.2	+ 10	23	23	2.5	1
46	254	.81	0.99	+ .34	— 15	2.0	— 15	25	25	4.5	4.5
47	289	.82	.99	+ .69	+ 20	1.9	+ 19	22	25	5	5
48	270	.82	.99	+0.50	+ 1	2.0	+ 1	25	25	5	5
49	331	.83	.98	+1.11	+ 62	1.7	+ 53	22	22	4	4.5
50	— 290	+0.85	—0.95	+0.70	+ 18	1.6	+ 22 — 7	12	25	4.5	4.5
51	— 258	+1.35	+0.92	+0.38	+ 62	1.5	+ 46	25	22	5	4.5
52	299	1.35	.91	+ .79	+102	1.5	+ 76	25	25	4	3
53	309	1.36	.89	+ .89	+116	1.8	+104	25	25	5	4.5
54	150	1.39	.78	— .70	— 52	1.0	— 26	24	24	2.5	2
55	175	1.40	.74	— .45	— 29	1.7	— 25	25	25	4.5	3.5
56	242	1.41	.72	+ .22	+ 37	1.3	+ 24	25	25	2.5	1
57	— 289	+1.41	+0.69	+0.69	+ 82	1.3	+ 53 + 36	22	25	2.5	1.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT *	$\Delta_1 C.c_1'$ *	$\Delta_2 C.c_2'$ *	$D\tan\delta.n$ *	Rate. *	Precess. and Nutat. *	Prop. Mot. *
				58, 59. Rejected Observations.						
58	'95, Oct. 18.2	—12.93	—12.93	— 447	+ 70	— 54	+ 2	—4	+ 6	— 56
59	95 Nov. 1.2	— 3.72	— 3.72	— 344	+ 20	— 16	+ 3	—3	+ 6	— 59

1. Star 243, f; through light clouds. Lamp illumination. 2, 3. Daylight illumination predominates on stars 242 and 244. 4. Through light clouds. 7. Star 243, fff. Clouds near. 13. Star 243, ff; screen III reduces its apparent brightness too much. The transit of one thread for star 243 was rejected. This had been noted as a poor transit at the time of observation. 18, 19. Partly daylight illumination. 20. Daylight illumination. 21, 23, 28. Star 243, fff. 22. Image of star 243 blurred and very faint. 24. Star 243, ff; est'd mag.: 8.5. 32. Clouds near; est'd mags.: 7.0, 8.7, 7.0. 37. Light clouds. Star 243, fff; est'd mags.: 6.7, 9.0, 6.8. 41. A comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 40, shows that star 242 was observed here systematically early by 0*s*.24 with reference to stars 243 and 244. Many clouds visible in the sky a little later. 44. Star 243, image breaking badly and almost invisible at times. 50, 51, 52. Daylight illumination. Est'd mags.: 7.6, 8.8, 8.2. 52. Est'd mags.: 7.7, 8.7, 7.8. 53. Light clouds. Est'd mags.: 7.2, 8.3, 7.7. 54. Star 243. One thread rejected; residual of time reduced to middle thread = —0*s*.40; next largest residual = +0*s*.16. 58. Clouds. Star 243 observed through screen II. Est'd mags.: 8.0, 6.7 to 7.3, 7.0. 59. Daylight illumination. Star 243 observed through screen II. Est'd mags.: 6.7, 6.0, 6.5.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
3d	6.50	8.40	6.60	2	$+142.34\,x + 61.23\,y - 11.67\,z + 10.90 = 0$
4th	6.34	8.38	6.28	12	$+ 61.23\,x + 77.08\,y - 20.91\,z + 16.45 = 0$
5th	6.63	8.32	6.50	4	$- 11.67\,x - 20.91\,y + 112.94\,z - 48.67 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				58, 59. Rejected Observations.							
58	— 483	+0.80	—1.00	+2.63	+214			18	18	5	5
59	— 393	+0.84	—0.97	+1.73	+125			23	23	5	5

Assumed $D\alpha$ 1895.0 $= -104^s.220$ $\quad d.D\alpha = 0^s.000$ $\quad p_z = 107.00$

$x = +0.001$ $\quad d.D\mu = -0.010$ $\quad [pnn.3] = 0.4874$

$y = -0.103$ $\quad [pvv] = 0.4888$

$z = +0.412$ $\quad \pi = +0''.31 \pm 0''.047$ $\quad r = \pm 0^s.032$

ADDITIONAL SOLUTIONS.

	A	B
	56 obs.	47 obs.
$d.D\alpha$	$-0^s.007$	$-0^s.008$
$d.D\mu$	$-0^s.010$	$-0^s.008$
π	$+0''.32 \pm 0''.040$, $r = \pm 0^s.028$	$+0''.34 \pm 0''.043$, $r = \pm 0^s.029$

	C	D	E	F
	Obs. 1—31.	Obs. 32—57.	Obs. 18—57.	Obs. 1—17 and 32—57
$d.D\alpha$	$+0^s.005$	$-0^s.029$	$+0^s.081$	$-0^s.022$
$d.D\mu$			$-0^s.109$	$-0^s.016$
π	$+0''.40 \pm 0''.077$	$+0''.08 \pm 0''.075$	$+0''.32 \pm 0''.046$	$+0''.12 \pm 0''.051$
r	$\pm 0^s.031$	$\pm 0^s.030$	$\pm 0^s.028$	$\pm 0^s.029$

NOTES TO THE RESULTS OF ADDITIONAL SOLUTIONS.

A. The observations which were most affected by the extreme faintness of star 243, were corrected in order to make them comparable with the remaining observations, in which the star was only moderately faint. These observations were 7, 13, 14, 21, 22, 23, 28, 32, 37, 44 and 54. A correction was derived from the observations with the screens on miscellaneous stars, $-0^s.095$, and this was applied to $D\alpha$, 1895.0, for all the observations named. Observation 41 was rejected in this solution.

B. No correction applied on account of extreme faintness of star 243; but observations 7, 13, 14, 21, 22, 23, 28, 32, 37, and 41 omitted.

C, D, E, F. No correction applied on account of extreme faintness of star 243.

C, D. $y = -0^s.1028$ assumed from the first complete solution.

F. Omitting all the observations of the third epoch, 18—31; these appear to have their values of $10n_1'$ systematically too large negative.

TABLE VII (Continued).

STARS 245, 246, 247.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s		+ 23s						
1	'93, Oct. 17.3	— 0.12	— 0.12	+ 631	— 1	0	+10	0	—12	—178
2	21	.12	.12	730	0		10		12	176
3	24.3	.12	.12	654	0		10		11	175
4	Nov. 1.2	.00	.00	607	0		10		11	172
5	3	0.00	.00	609	0		10		10	171
6	4	27.40	.00	782	—137		9		10	171
7	5	— 0.01	— 0.01	+ 618	0	0	+ 9	0	—10	—170
8	94 May 25.7	—18.28	— 5.56	+ 733	— 91	+11	— 2	0	— 6	— 89
9	31.6	12.85	0.04	648	64	0	0		7	86
10	June 2	18.28	5.56	679	91	+11	1		7	85
11	3	0.04	0.04	550	0	0	— 2		7	85
12	6	0.04	— 0.04	509	0	0	+ 1		7	84
13	11	9.04	+ 1.65	642	— 45	— 3	— 3		7	82
14	12	0.04	— 0.04	563	0	0	— 2		7	82
15	13	0.04	0.04	573	0	0	+ 1		7	81
16	14	— 0.04	— 0.04	+ 493	0	0	+ 2	0	— 7	— 81
17	94 Sept. 10.4	— 0.09	— 0.09	+ 520	0	0	+ 9	0	— 6	— 45
18	15.3	.09	.09	487	0	0	7		6	43
19	18	.09	.09	491	— 1	0	7		6	42
20	19	.09	.09	527	0	0	7		5	42
21	24	0.09	0.18	485	1	0	8		5	40
22	25	8.21	5.61	549	41	+11	7		5	39
23	26	0.09	0.09	535	0	0	7		5	39
24	27	0.09	0.09	514	— 1	0	7		5	38
25	28	— 0.09	— 0.09	+ 531	0	0	+ 7	0	— 4	— 38
26	95 May 19.7	— 0.25	— 0.63	+ 481	— 1	+ 1	— 8	0	+ 5	+ 57
27	20	— 0.08	— 0.08	+ 452	0	0	— 8	0	+ 5	+ 57

TABLE VII (Continued).

LALANDE 38383.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
	+ 23^s			^{s}						
1	+ 450	—1.20	—1.00	+0.20	+ 29	1.2	+ 17	11	11	4
2	552	1.19	1.00	— .82	— 73	1.2	— 44	11	11	3.5
3	478	1.18	1.00	— .08	+ 1	0.9	+ 0	11	11	1
4	434	1.16	0.98	+ .36	+ 45	1.4	+ 32	11	11	4.5
5	438	1.16	.97	+ .32	+ 41	1.4	+ 29	11	11	4.5
6	473	1.15	.97	— .03	+ 6	1.4	+ 4	10	11	4.5
7	+ 447	—1.15	—0.96	+0.23	+ 32	1.2	+ 19	11	11	3.5
							+ 8			
8	+ 556	—0.60	+0.79	—0.86	— 89	1.5	— 67	15	22	3.5 3
9	491	.58	.73	— .21	— 24	1.6	— 19	18	25	3.5 3
10	506	.58	.71	— .36	— 39	1.5	— 29	15	22	3.5 3
11	456	.58	.69	+ .14	+ 12	1.4	+ 8	25	25	3 2
12	419	.57	.66	+ .51	+ 49	1.4	+ 34	25	25	2.5 2
13	502	.55	.59	— .32	— 34	1.6	— 27	20	24	4 3
14	472	.55	.57	— .02	— 4	1.7	— 3	25	25	3.5 3
15	486	.55	.56	— .16	— 18	1.7	— 15	25	25	4 3
16	+ 407	—0.55	+0.54	+0.63	+ 61	1.7	+ 52	25	25	4 3
							— 7			
17	+ 478	—0.30	—0.77	—0.08	— 1	1.7	— 1	25	25	3 3
18	445	.29	.82	+ .25	+ 32	1.9	+ 30	25	25	4.5 4
19	449	.28	.85	+ .21	+ 29	1.7	+ 25	25	25	3 3
20	487	.28	.86	— .17	— 9	2.0	— 9	25	25	4 5
21	447	.27	.90	+ .23	+ 31	1.6	+ 25	25	24	3 3
22	482	.26	.91	— .12	— 4	1.5	— 3	17	22	4 3.5
23	498	.26	.91	— .28	— 20	1.9	— 19	25	25	5 4
24	477	.26	.92	— .07	+ 1	2.0	+ 1	25	25	5 5
25	+ 496	—0.26	—0.93	—0.26	— 18	1.9	— 17	25	25	5 4
							+ 4			
26	+ 535	+0.38	+0.85	—0.65	— 69	1.3	— 45	23	22	3 1.5
27	+ 506	+0.39	+0.84	—0.36	— 39	1.8	— 35	25	25	4.5 4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
28	'95, May 21.7	— 5.60	— 0.08	+ 470	— 28	0	— 6	0	+ 5	+ 58
29	23	5.60	0.08	471	— 28	0	6		5	58
30	24	— 0.08	0.08	401	0	0	6		5	59
31	26	+ .48	1.85	520	+ 2	+ 4	6		4	60
32	27.6	— .08	0.08	393	0	0	7		4	60
33	28	.08	.08	393	0	0	10		4	61
34	30	.08	.08	353	0	0	9		4	62
35	June 1	— 0.08	— 0.08	+ 369	0	0	—10	0	+ 4	+ 62
36	95 Sept. 27.3	— 0.12	— 0.12	+ 300	— 1	0	— 6	0	+ 6	+110
37	29	0.12	.12	337	1	0	6	0	6	110
38	30	0.12	.12	363	1	0	6	0	6	111
39	Oct. 1	33.13	0.12	573	166	0	6	0	6	111
40	2	27.48	1.89	553	137	+ 4	6	0	6	112
41	5	0.12	0.12	395	1	0	7	0	7	113
42	9	27.48	.12	521	137	0	7	0	7	114
43	12	18.36	.12	437	92	0	8	+ 1	7	116
44	13	10.97	.12	423	55	0	8	1	8	116
45	16	0.12	.12	324	1	0	8	1	8	117
46	17	.12	.12	365	0	0	8	1	8	118
47	21.2	.12	.12	352	1	0	7	1	8	119
48	22	.12	.12	390	0	0	8	1	9	120
49	23	0.12	.12	381	1	0	8	1	9	120
50	25	5.64	.12	397	28	0	8	1	9	121
51	26	0.12	.12	331	0	0	8	1	9	121
52	29	.12	.12	370	1	0	6	1	10	122
53	Nov. 1	.12	.12	308	1	0	8	1	10	124
54	4	0.12	.12	410	1	0	11	0	11	125
55	5	—26.67	— 0.12	+ 530	—133	0	—10	+1	+11	+125

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
28	+ 499	+0.39	+0.83	−0.29	− 32	1.9	−30	22	25	5	5
29	500	.39	.81	−0.30	− 33	1.9	−31	22	25	5	5
30	459	.40	.81	+0.11	+ 8	2.0	+ 8	25	25	5	5
31	584	.40	.79	−1.14	−117	0.8	−47	22	24	3	2
32	450	.40	.78	+0.20	+ 17	1.7	+14	25	25	4	3
33	448	.41	.77	+ .22	+ 19	1.8	+17	25	25	4	4
34	410	.41	.74	+ .60	+ 57	2.0	+57	25	25	5	5
35	+ 425	+0.42	+0.72	+0.45	+ 42	1.8	+38	25	25	4	4
							− 5				
36	+ 409	+0.74	−0.92	+0.61	+ 69	1.8	+62	25	25	5	4.5
37	446	.75	.93	+ .24	+ 32	2.0	+32	25	25	5	5
38	473	.75	.94	− .03	+ 5	2.0	+ 5	25	25	5	5
39	518	.75	.95	− .48	− 40	1.3	−26	7	25	5	4.5
40	532	.76	.95	− .62	− 55	1.6	−44	10	24	5	5
41	507	.76	.96	− .37	− 30	2.0	−30	25	25	5	5
42	498	.77	.98	− .28	− 21	1.6	−17	10	25	5	5
43	461	.78	.99	+ .09	+ 16	1.8	+14	15	25	5	5
44	485	.79	0.99	− .15	− 8	1.7	− 6	19	25	4.5	4
45	441	.79	1.00	+ .29	+ 36	1.8	+32	25	25	3.5	4
46	484	.80	1.00	− .14	− 7	2.0	− 7	25	25	5	5
47	472	.81	1.00	− .02	+ 5	1.7	+ 4	25	25	3.5	3
48	512	.81	1.00	− .42	− 35	1.8	−32	25	22	4.5	4
49	502	.81	1.00	− .32	− 25	2.0	−25	25	25	4.5	5
50	492	.82	1.00	− .22	− 15	1.9	−14	22	25	4.5	4.5
51	454	.82	1.00	+ .16	+ 23	2.0	+23	25	25	5	5
52	496	.83	0.99	− .26	− 19	2.0	−19	25	25	4	4.5
53	434	.84	.98	+ .36	+ 43	2.0	+43	25	25	4.5	4.5
54	534	.85	.97	− .64	− 57	2.0	−57	25	25	5	5
55	+ 524	+0.85	−0.97	−0.54	− 47	1.6	−38	10	25	5	5
							− 5				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
56	'96, May 23.7	— 0.12	— 0.12	+ 218	— 1	0	—13	0	+14	+206
57	26.6	1.89	.12	188	9		13	+1	14	207
58	28	5.64	.12	288	28		13	0	14	208
59	30	16.44	.12	324	82		12	+1	14	209
60	31	0.12	.12	213	1		12	0	13	210
61	June 1	— 0.12	— 0.12	+ 346	— 1	0	—12	0	+13	+210
	62. Rejected Observation.									
62	94 Nov. 3.2	— 0.26	+20.88	+ 390	— 1	—42	+ 5	0	+ 1	— 23

4, 5, 6, 7. Daylight illumination. 7. Star 245, f. 9, 15. Star 245, f. 22. Screens revolving part way in the wind; observation lost on some threads for star 245 in consequence.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.7	7.2	7.5	1
5th	7.76	7.31	7.69	10
6th	7.73	7.43	7.68	6

Normal Equations.

$+176.87\,x + 55.54\,y - 52.25\,z - 6.33 = 0$

$+ 55.54\,x + 104.47\,y - 14.29\,z - 1.17 = 0$

$- 52.25\,x - 14.29\,y + 135.37\,z + 9.66 = 0$

STARS 248, 249, 250.

				— 57s						
		s	s							
1	'93, Oct. 17.3	— 0.12	— 0.12	—1248	+ 2	— 2	— 2	0	+ 9	+226
2	24	— .12	— .12	1305	+ 2	— 2	2	0	9	222
3	Nov. 1.2	.00	.00	1325	0	0	2	—1	9	218
4	2	.00	.00	1368	0	0	2	0	9	218
5	3	0.00	0.00	—1315	0	0	— 2	0	+ 9	+217
6	94 May 25.7	—12.85	+ 5.48	—1453	+226	+95	0	0	— 4	+113
7	June 2.6	0.04	— 0.04	1241	1	— 1	0	0	3	109
8	3	27.40	— 5.56	1565	482	—97	0	—1	3	108
9	6	0.67	+ 5.55	1259	12	+97	0	0	3	106
10	12	— 5.56	— 0.04	—1234	+ 98	— 1	+ 1	0	— 2	+103
11	94 Sept. 10.4	— 5.61	— 0.09	—1186	+ 99	— 2	— 2	0	+ 5	+ 58
12	15.3	— 0.09	— 0.09	—1096	+ 2	— 2	— 2	0	+ 5	+ 55

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
56	+ 424	+1.39	+0.81	+0.46	+ 42	1.7	+36	25	25	4	2.5
57	388	1.40	.78	+ .82	+ 78	1.7	+66	24	25	4	3
58	469	1.41	.76	+ .01	− 3	1.6	− 2	22	25	4	3
59	454	1.41	.73	+ .16	+ 12	1.6	+10	16	25	4	3.5
60	423	1.42	.72	+ .47	+ 43	1.7	+36	25	25	4	2.5
61	+ 556	+1.42	+0.71	−0.86	− 90	1.6	−72	25	25	3.5	2.5
							+12				
				62. Rejected Observation.							
62	+ 330	−0.16	−0.97	+1.40	+148			24	5	3	3

31. Quality of images variable; very poor for star 245, improving decidedly for star 246, and good for star 247. 36. Star 245, ff. 55. Star 245 observed through clouds. Daylight illumination. 62. Daylight illumination. Clouds. Star 247 visible on a few threads only.

Assumed $D\alpha$ 1895.0 $= +23^s.470$ $d.D\alpha = +0^s.002$ $p_z = 119.88$

$x = + 0.019$ $d.D\mu = -0.001$ $[pnn.3] = 0.2470$

$y = - 0.007$ $[pvv] = 0.2468$

$z = - 0.065$ $\pi = -0''.05 \pm 0''.028$ $r = \pm 0^s.022$

PIAZZI XX, 29.

	− 57^s			^{s}							
1	−1015	−1.20	−1.00	−0.25	− 57	1.1	−31	11	11	3.5	
2	1076	1.18	1.00	+0.36	+ 7	0.9	+ 3	11	11	2	
3	1101	1.16	0.98	+0.61	+ 30	1.1	+16	11	11	3	
4	1143	1.16	0.98	+1.03	+ 73	1.1	+40	11	11	3.5	
5	−1091	−1.16	−0.98	+0.51	+ 20	1.1	+11	11	11	3.5	
							+ 8				
6	−1023	−0.60	+0.81	−0.17	− 54	1.6	−43	18	22	3	2.5
7	1135	.58	.73	+ .95	+ 61	1.3	+40	25	25	3.5	1.5
8	1076	.58	.72	+ .36	+ 2	1.4	+ 1	10	22	4.5	4
9	1047	.57	.68	+ .07	− 26	1.1	−14	23	21	2	0.5
10	−1035	−0.55	+0.60	−0.05	− 37	1.8	−33	22	25	5	4
							−10				
11	−1028	−0.30	−0.74	−0.12	− 15	1.6	−12	22	25	4	3
12	−1038	−0.29	−0.80	−0.02	− 4	1.4	− 3	25	25	3.5	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
13	'94, Sept. 19.3	— 9.09	— 0.09	—1281	+160	— 2	— 2	0	+ 5	+ 53
14	24	7.37	+ 5.43	1331	130	+94	2	—1	6	50
15	25	0.09	— 0.09	1108	2	— 2	2	0	6	50
16	26	0.09	.09	1092	2	2	2	0	6	49
17	27	0.09	.09	1140	2	2	2	0	6	48
18	28	3.69	.09	1136	65	2	2	—1	6	47
19	Nov. 3.2	— 0.09	— 0.09	—1130	+ 2	— 2	— 1	0	+ 6	+ 29
20	95 May 23.7	— 1.85	— 0.08	— 965	+ 33	— 1	+ 2	0	— 6	— 75
21	24	18.32	+ 1.52	1320	322	+26	2	—1	6	75
22	27	12.89	— 0.08	1237	227	— 1	2	0	6	77
23	28	12.89	.08	1197	227	1	2	1	6	77
24	30.6	0.68	.08	965	12	1	2	0	6	79
25	June 1	5.60	.08	1030	99	1	2	1	6	79
26	2	27.44	.08	1463	483	— 1	2	0	6	80
27	5	— 7.81	— 0.02	— 977	+137	0	+ 2	—1	— 6	— 81
28	95 Sept. 29.3	— 0.12	— 0.12	— 864	+ 2	— 2	+ 2	0	+ 3	—140
29	Oct. 1	0.12	.12	902	2	2	2	—1	3	141
30	2	12.93	.12	1041	228	2	2	0	3	141
31	5	16.92	.12	1218	298	2	2	1	3	143
32	12	0.12	.12	809	2	2	2	2	3	147
33	16	0.12	.12	918	2	2	2	2	3	149
34	17	9.12	.12	982	161	2	2	2	3	149
35	22	0.12	.12	846	2	2	2	2	3	152
36	25.2	0.12	0.12	734	2	2	2	2	3	153
37	26	19.95	5.64	1106	351	98	2	2	3	154
38	29	0.12	0.12	818	2	2	2	2	3	156
39	Nov. 1	— 0.12	— 0.12	— 876	+ 2	— 2	+ 2	—2	+ 3	—157

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
13	—1067	—0.28	—0.84	+0.27	+ 26	1.5	+20	20	25	3	2.5
14	1054	.27	.88	+ .14	+ 14	1.5	+10	15	22	3	3
15	1054	.26	.89	+ .14	+ 15	1.4	+10	25	25	2.5	2
16	1039	.26	.90	— .01	— 1	1.7	— 1	25	25	3	3
17	1088	.26	.91	+ .48	+ 49	1.7	+42	25	25	3.5	3
18	1023	.26	.91	— .17	— 17	1.6	—14	23	25	3	3
19	—1096	—0.16	—0.98	+0.56	+ 61	1.6	+49	25	25	2.5	2.5
							+11				
20	—1012	+0.39	+0.83	—0.28	— 30	1.9	—28	24	25	4.5	4.5
21	1052	.40	.83	+ .12	+ 11	1.8	+10	15	24	4.5	4.5
22	1092	.40	.80	+ .52	+ 50	1.2	+30	18	25	3	1
23	1053	.41	.79	+ .13	+ 13	1.6	+10	18	25	3.5	3
24	1037	.41	.77	— .03	— 4	1.4	— 3	24	25	3	2
25	1016	.42	.74	— .24	— 23	1.5	—17	22	25	2.5	2.5
26	1065	.42	.73	+0.25	+ 25	1.6	+20	10	25	4.5	4.5
27	— 926	+0.43	+0.70	—1.14	—112	1.3	—73	20	25	3	3
							— 6				
28	— 999	+0.75	—0.92	—0.41	— 6	1.7	— 5	25	25	4.5	3
29	1039	.75	.93	— .01	+ 35	1.7	+30	25	25	4.5	3
30	951	.76	.93	— .89	— 53	1.9	—50	18	25	5	5
31	1061	.76	.95	+ .21	+ 59	1.8	+53	14	25	5	4.5
32	953	.78	.98	— .87	— 50	1.7	—42	25	25	3.5	3
33	1064	.79	0.99	+ .24	+ 63	1.3	+41	25	25	3	1
34	969	.80	1.00	— .71	— 33	1.7	—28	20	25	4.5	3
35	995	.81	1.00	—0.45	— 5	1.7	— 4	25	25	4	3
36	884	.82	1.00	—1.56	—117	1.7	—99	25	25	5	3.5
37	1004	.82	1.00	—0.36	+ 5	1.4	+ 4	14	22	4	2.5
38	971	.83	1.00	—0.69	— 30	1.7	—25	25	25	3.5	3
39	—1030	+0.84	—0.99	—0.10	+ 30	1.7	+26	25	25	4.5	3
							— 8				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
40	'96, May 23.7	—19.95	— 0.12	—1231	+351	— 2	+ 3	—1	— 9	—262
41	26	— 0.12	.12	685	+ 2	2	3	1	9	263
42	28.6	+ 0.89	.12	688	— 16	2	3	1	9	265
43	30	— 5.64	.12	838	+ 99	2	3	1	9	266
44	June 1	0.12	.12	865	2	2	3	1	9	267
45	5	— 0.12	— 0.12	— 698	+ 2	— 2	+ 3	—1	— 8	—269
		46, 47. Rejected Observations.								
46	93 Oct. 21.3	— 0.12	— 0.12	—1483	+ 2	— 2	— 2	0	+ 9	+224
47	95 May 26.7	—21.02	—12.89	—1411	+370	—224	+ 2	0	— 6	— 76

4, 5. Daylight illumination. 10. Thick haze. 19. Daylight illumination. 25. Clouds. Star 250, est'd mag., 7.8. 27. Star 248, image very diffuse; image of star 250 much better. 34. Clouds? Est'd mags.: 8.5, 7.0, 8.2. 37. Light clouds; star 249, ff. 40. Daylight illumination. 46. Star 248, ff; star 249, image unsteady and diffuse. A comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 1, shows that star 249 was observed here systematically early by 0s.12 with reference to stars 248 and 250. 47. All three stars fainter than usual; sky thick.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	7.89	6.20	7.70	10
6th	7.90	6.15	7.77	6

Normal Equations.

$$+106.26\,x + 37.51\,y - 23.50\,z - 12.71 = 0$$
$$+ 37.51\,x + 67.35\,y + 3.49\,z - 21.75 = 0$$
$$- 23.50\,x + 3.49\,y + 79.96\,z + 9.52 = 0$$

STARS 251, 252, 253.

		s	s	— 9s						
1	'93, Nov. 4.2	0.00	0.00	—1225	0	0	—31	0	+31	+ 86
2	94 Sept. 10.4	—12.77	—18.33	— 771	+ 60	—247	—30	0	— 8	+ 23
3	15	7.37	7.37	1058	35	99	22		8	22
4	19	—10.24	—15.12	— 798	+ 48	—204	—22	0	— 7	+ 21

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{pv_1'}$ *	m_1	m_2	Images.	
				^{s}							
40	—1151	+1.39	+0.83	+1.11	+144	1.1	+ 79	14	25	3.5	2
41	955	1.40	.80	−0.85	— 51	1.8	— 46	25	25	5	3.5
42	978	1.41	.78	— .62	— 28	1.4	— 20	24	25	4	2
43	1014	1.41	.76	— .26	+ 9	1.5	+ 7	22	25	4	2.5
44	1139	1.42	.73	+ .99	+134	1.8	+121	25	25	5	3.5
45	— 973	+1.43	+0.68	−0.67	— 31	1.8	— 28	25	25	5	3.5
							+ 19				
	46, 47. Rejected Observations.										
46	—1252	−1.19	−1.00	+2.12	+181			11	11	1	
47	—1345	+0.40	+0.81	+3.05	+303			12	18	4	4

Assumed $D\alpha$ 1895.0 $= -58^s.040$ $\quad d.D\alpha = -0^s.004$ $\quad p_z = 72.20$

$x = -0.036$ $\quad d.D\mu = +0.035$ $\quad [pnn.3] = 0.2646$

$y = +0.351$ $\quad [pvv] = 0.2656$

$z = -0.145$ $\quad \pi = -0''.10 \pm 0''.043$ $\quad r = \pm 0^s.027$

Stars 248 and 249.

	All Observations.	'93, Oct.—'94, Nov.	'95, May—'96, June.
$d.\Delta\mu$	$+0^s.021$	$+0^s.006$	$+0^s.038$
π	$-0''.12 \pm 0''.072$	$+0''.11 \pm 0''.084$	$-0^s.19 \pm 0''.099$
r_1	$\pm 0''.21$	$\pm 0''.12$	$\pm 0''.25$
	52 obs.	20 obs.	32 obs.

Stars 249 and 250.

	All Observations.	'93, Oct.—'94, Nov.	'95, May—'96, June.
$d.\Delta\mu$	$+0^s.018$	$+0^s.030$	$-0^s.003$
π	$-0''.15 \pm 0''.049$	$-0''.15 \pm 0''.065$	$-0''.15 \pm 0''.072$
r_1	$\pm 0''.14$	$\pm 0''.11$	$\pm 0''.17$
	54 obs.	27 obs.	27 obs.

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	— 9^s			^{s}							
1	—1139	—1.15	−0.98	+0.79	+ 68	1.1	+37	11	11	2.5	
2	— 973	−0.30	−0.72	−0.87	— 98	1.3	−64	12	15	4	3
3	1130	0.29	0.78	+0.70	+ 61	0.8	+24	15	15	3.5	2
4	— 962	−0.28	−0.82	−0.98	−106	0.6	−32	10	12	3	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
5	'94, Sept. 24.3	—10.21	—10.21	—1016	+ 48	—138	—25	0	— 7	+ 20
6	26	9.89	17.51	740	46	236	21		7	19
7	28	7.37	7.37	1057	35	99	21		6	19
8	Nov. 3.2	—21.84	—27.45	— 832	+103	—370	—17	0	— 1	+ 12
9	95 Sept. 29.3	—15.95	—27.48	— 660	+ 75	—371	+21	0	—37	— 55
10	30	19.66	25.36	702	92	342	20		37	55
11	Oct. 1	16.36	22.41	606	77	303	20		37	56
12	2	7.40	7.40	870	35	100	20		36	56
13	5	25.22	31.78	639	119	429	21		36	56
14	9	29.17	29.17	886	137	394	21		35	57
15	12	10.87	16.44	884	51	222	25		35	58
16	16	10.86	16.44	795	51	222	27		34	59
17	25.2	7.40	12.93	803	35	175	28		33	60
18	Nov. 1	— 7.40	— 7.40	—1036	+ 35	—100	+26	0	—32	— 62
19	96 May 30.7	— 7.40	—12.93	— 811	+ 35	—175	+40	0	—59	—105
20	June 1.6	7.40	12.93	961	35	175	40		59	105
21	5	12.47	18.98	652	59	256	46		60	106
22	10	— 0.12	— 0.12	969	+ 1	— 2	42		61	107
23	13	+ 0.55	+ 0.55	— 943	— 3	+ 7	+40	0	—62	—108

3, 5. Star 252, ff. 4, 8, 11, 13, 20, 21, 23. Star 252, fff. 20. Comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 21 shows that the difference, 0s.26, between the values of $D\alpha$, 1895.0, is a systematic difference arising apparently in the observation of star 252.

Epoch.	Estimated Magnitudes.			No. of Ests.
3d	7.80	8.62	7.05	8
4th	7.75	8.70	7.10	4

Normal Equations.

$+28.16\,x + 15.84\,y - 15.72\,z + 2.46 = 0$

$+15.84\,x + 22.92\,y - 0.54\,z + 2.33 = 0$

$-15.72\,x - 0.54\,y + 21.83\,z + 1.03 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
5	—1118	—0.27	—0.87	+0.58	+ 51	1.2	+31	12	12	3	3
6	939	.26	.88	—1.21	—128	1.1	—70	13	15	3	2
7	1129	.26	.90	+0.69	+ 62	1.3	+40	15	15	3	3
8	—1105	—0.16	—0.98	+0.45	+ 41	0.7	+14	7	10	2.5	2.5
							− 8				
9	—1027	+0.75	—0.91	—0.33	— 32	1.1	—18	10	10	4.5	3
10	1024	.75	.91	—0.36	— 35	1.2	—21	8	11	4.5	4
11	905	.75	.92	—1.55	—154	0.6	—46	9	12	4.5	3
12	1007	.76	.92	—0.53	— 52	1.5	—39	15	15	5	5
13	1020	.76	.94	—0.40	— 39	0.8	—16	3	5	5	4.5
14	1214	.77	.96	+1.54	+156	1.0	+78	9	9	4	2.5
15	1123	.78	.97	+0.63	+ 65	1.2	+39	13	16	3.5	3
16	1032	.79	0.99	—0.28	— 26	0.8	—10	13	16	3	1
17	1008	.82	1.00	—0.52	— 49	1.6	—39	15	18	4.5	4.5
18	—1169	+0.84	—0.99	+1.09	+112	1.3	+73	15	15	4.5	3
							0				
19	—1075	+1.41	+0.79	+0.15	— 19	1.4	—13	15	18	4.5	3
20	1225	1.42	.77	+1.65	+132	1.0	+66	15	18	5	3.5
21	969	1.43	.72	—0.91	—123	0.6	—37	11	13	5	3.5
22	1096	1.44	.67	+0.36	+ 6	1.2	+ 4	19	19	3	3
23	—1069	+1.45	+0.63	+0.09	—120	1.2	—12	18	18	5	3
							+ 2				

Assumed $D\alpha$ 1895.0 $= -10^s.060$

$x = -0.251$

$y = +0.066$

$z = -0.227$

$d.D\alpha = -0^s.025$

$d.D\mu = +0.007$

$\pi = -0''.16 \pm 0''.151$

$p_z = 8.12$

$[pnn.3] = 0.1603$

$[pvv] = 0.1600$

$r = \pm 0^s.030$

TABLE VII (Continued).

STARS 254, 255, 256.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	— 56s						
1	'93, Oct. 21.3	— 0.12	— 0.12	— 283	0	0	— 1	0	+ 3	
2	24	— .12	— .12	200			0	0	3	
3	Nov. 1	.00	.00	197			1	—1	3	
4	3.2	.00	.00	232			0	0	3	
5	4	.00	.00	161			1	0	3	
6	5	.00	.00	216			0	0	3	
7	6	.00	.00	168			1	—1	3	
8	7	.00	.00	176			0	0	3	
9	8	.00	.00	237			— 1	0	3	
10	9	0.00	0.00	— 243	0	0	0	0	+ 3	
11	94 May 31.7	— 0.04	— 1.04	— 304	0	0	0	0	— 6	
12	June 2	25.28	25.28	187	+ 8	—10		0	6	
13	3	5.56	1.62	245	2	0		—1	6	
14	6.6	0.04	0.04	212	0	0		0	6	
15	11	0.03	26.13	240	0	—10		0	6	
16	12	3.47	0.04	197	1	0		1	5	
17	13	— 1.81	0.04	268	+ 1	0		0	5	
18	14	+ 0.60	4.69	296	0	— 2		0	5	
19	22	— 0.04	— 0.04	— 196	0	0	0	—1	— 4	
20	94 Sept. 10.4	— 0.09	— 0.18	— 216	0	0	— 1	0	+ 2	
21	15	.09	0.09	182		0	0	0	3	
22	19	.09	0.09	225		0	0	—1	3	
23	25	.09	5.61	174		— 2	0	0	4	
24	26.3	.09	0.09	211		0	— 1	0	4	
25	27	.09	.09	174		0	0	—1	4	
26	28	.09	.09	178		0	0	0	4	
27	Nov. 3.2	— 0.09	— 0.09	— 173	0	0	0	0	+ 4	

TABLE VII (Continued).

β DELPHINI.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{3}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	— 56^s			^{s}							
1	— 281	—1.19	—0.99	+0.81	+ 58	1.1	+32	11	11	3.5	
2	197	1.18	1.00	— .03	— 25	0.6	— 7	11	11	0.5	
3	196	1.16	1.00	— .04	— 25	1.3	—16	11	11	4.5	
4	229	1.16	0.99	+ .29	+ 7	1.2	+ 4	11	11	4	
5	159	1.15	.99	— .41	— 63	1.3	—41	11	11	4.5	
6	213	1.15	.99	+ .13	— 9	1.2	— 5	11	11	4	
7	167	1.15	.99	— .33	— 55	1.2	—33	11	11	4	
8	173	1.15	.98	— .27	— 49	1.4	—34	11	11	5	
9	235	1.14	.98	+ .35	+ 14	1.1	+ 8	11	11	3.5	
10	— 240	—1.14	—0.98	+0.40	+ 20	1.4	+14	11	11	5	
							— 8				
11	— 310	—0.58	+0.82	+1.10	+ 77	0.8	+31	25	4	3.5	3
12	195	.58	.80	—0.05	— 37	1.1	—20	11	11	4	3
13	250	.58	.79	+ .50	+ 18	1.6	+14	22	23	2	3
14	218	.57	.75	+ .18	— 13	1.7	—11	25	25	3	3
15	256	.55	.69	+ .56	+ 27	0.9	+12	5	9	4	3
16	202	.55	.68	+ .02	— 28	1.9	—27	23	25	5	4.5
17	272	.55	.67	+0.72	+ 43	1.7	+37	24	25	4	3.5
18	303	.55	.66	+1.03	+ 74	1.5	+56	22	20	5	4
19	— 201	—0.52	+0.56	+0.01	— 25	2.0	—25	25	25	4.5	4.5
							+ 7				
20	— 215	—0.30	—0.67	+0.15	+ 15	1.6	+12	25	24	3	3
21	179	.29	.73	— .21	— 19	1.7	—16	25	25	4	3
22	223	.28	.78	+ .23	+ 27	1.7	+23	25	25	3	3
23	172	.26	.84	— .28	— 23	1.7	—20	25	22	4	3.5
24	208	.26	.85	+ .08	+ 12	2.0	+12	25	25	4.5	4.5
25	171	.26	.86	— .29	— 24	2.0	—24	25	25	5	5
26	174	.26	.87	— .26	— 20	1.9	—19	25	25	5	4
27	— 169	—0.16	—0.99	—0.31	— 20	1.7	—17	25	25	3.5	3.5
							— 6				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
28	'95, June 2.7	— 0.08	— 0.08	— 216	0	0	+ 1	0	— 4	
29	5.6	0.02	0.02	194	0	0	0	—1	4	
30	13	— 0.02	— 0.02	— 219	0	0	0	0	— 3	
31	95 Sept. 29.3	— 0.12	— 0.12	— 151	0	0	0	0	+ 5	
32	30	.12	.12	172	0	0	0	—1	5	
33	Oct. 1	.12	.12	182	0	0	0	0	5	
34	2	.12	.12	164	0	0	+ 1	1	5	
35	5	.12	.12	110	0	0	0	0	5	
36	9	.12	.12	150	0	0	0	1	6	
37	12	0.12	0.12	189	0	0	1	2	6	
38	13	12.65	3.10	139	+ 4	— 1	0	2	6	
39	16	0.12	0.12	206	0	0	1	2	6	
40	17	.12	.12	202	0	0	0	2	6	
41	22	.12	.12	154	0	0	1	2	6	
42	25	— .12	— .12	176	0	0	0	2	6	
43	29.2	+ .05	+ .98	51	0	0	0	2	6	
44	Nov. 1	— 0.12	— .12	131	0	0	0	2	6	
45	2	5.64	.12	203	+ 2	0	1	1	6	
46	4	0.12	.12	169	0	0	0	2	6	
47	12	— 0.12	— 0.12	— 189	0	0	+ 1	—2	+ 6	
48	96 May 26.7	— 0.12	— 0.80	— 188	0	0	+ 1	—1	— 3	
49	28	.12	18.36	162		— 7	0	1	3	
50	30	.12	0.12	126		0	1	1	3	
51	31	.12	.12	213		0	0	1	3	
52	June 1	.12	.12	162		0	1	1	3	
53	5.6	.12	.12	126		0	0	1	2	
54	9	— 0.12	— 0.12	— 163	0	0	+ 1	—1	— 2	

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
28	— 219	+0.42	+0.80	+0.19	+ 19	1.7	+16	25	25	4	3
29	199	0.43	0.77	—0.01	0	1.7	0	25	25	3	3
30	— 222	+0.45	+0.67	+0.22	+ 26	1.6	+21	25	25	2.5	2.5
							+12				
31	— 146	+0.75	—0.88	—0.54	— 14	1.7	—12	25	25	4	3
32	168	.75	.88	— .32	+ 7	2.0	+ 7	25	25	5	5
33	177	.75	.89	— .23	+ 17	2.0	+17	25	25	5	5
34	159	.76	.89	— .41	— 1	2.0	— 1	25	25	5	5
35	105	.76	.91	— .95	— 55	2.0	—55	25	25	5	5
36	145	.77	.94	— .55	— 15	2.0	—15	25	25	5	5
37	184	.78	.96	— .16	+ 26	2.0	+26	25	25	5	5
38	132	.79	.96	— .68	— 26	1.4	—18	15	19	4.5	4
39	201	.79	.97	+ .01	+ 43	1.9	+41	25	25	5	4
40	198	.80	.98	— .02	+ 39	2.0	+39	25	25	5	4.5
41	149	.81	0.99	— .51	— 8	2.0	— 8	25	25	4.5	4.5
42	172	.82	1.00	—0.28	+ 16	2.0	+16	25	25	5	5
43	47	.83	1.00	—1.53	—109	0.7	—38	24	24	2	1
44	127	.84	1.00	—0.73	— 29	1.9	—28	25	25	5	4
45	195	.84	1.00	— .05	+ 40	1.9	+38	22	25	5	4.5
46	165	.85	1.00	— .35	+ 10	2.0	+10	25	25	5	4.5
47	— 184	+0.87	—0.97	—0.16	+ 29	1.9	+28	25	25	4.5	4
							+ 3				
48	— 191	+1.40	+0.86	—0.09	+ 22	1.2	+13	25	24	3.5	2.5
49	173	1.41	.84	— .27	+ 5	1.3	+ 3	25	15	3.5	2
50	129	1.41	.82	— .71	— 39	1.7	—33	25	25	4	3
51	217	1.42	.81	+ .17	+ 51	1.7	+43	25	25	4	2.5
52	165	1.42	.80	— .35	— 2	1.5	— 2	25	25	4.5	2
53	129	1.43	.76	— .71	— 37	2.0	—37	25	25	4.5	4.5
54	— 165	+1.44	+0.71	—0.35	0	1.4	0	25	25	2.5	2

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	*s*							
55	'96, June 10.6	— 0.12	— 0.12	— 167	0	0	0	—1	— 2	
56	13	— 0.12	— 0.12	— 114	0	0	+ 1	—1	— 2	

11. Clouds. 13. Images breaking somewhat. 15. Clouds. The D group of threads alone common to stars 254 and 255; neither star observed with screen. The threads common to stars 255 and 256 were C_3 and E_3—G_3; star 255 observed with screen for threads E_3—G_3. 16. Star 254, one thread rejected. 18. Clouds. Star 254, f. 20. Images breaking at times. 28. Images breaking somewhat. Est'd mags.: 7.7, 6.5, 8.2. 38. Clouds. Star 254 observed without screen; no corresponding correction applied. 43. Images breaking badly. 48. Daylight illumination. Star 256, fff.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	7.36	5.94	7.93	10
6th	7.49	5.99	7.90	7

Normal Equations.

$+152.03\,x + 49.09\,y - 54.26\,z - 25.74 = 0$

$+ 49.09\,x + 113.47\,y - 3.72\,z - 36.32 = 0$

$- 54.26\,x - 3.72\,y + 114.56\,z + 21.21 = 0$

STARS 257, 258, 259.

		s	*s*	+ 20*s*						
1	'95, June 5.7	+ 5.66	+ 5.66	+ 633	—134	+230	—31	0	+19	— 24
2	13.6	— 3.46	+ 5.50	+ 509	+ 82	+223	—25	0	+17	— 25
3	95 Sept. 29.3	— 0.12	— 0.12	+ 895	+ 3	— 5	—27	0	+29	— 42
4	Oct. 1	0.12	0.12	777	3	5	27		30	42
5	5	9.12	9.12	979	216	370	27		32	43
6	9	5.64	1.89	799	134	77	28		32	44
7	12	0.12	0.12	835	3	5	34		34	44
8	13	— 0.12	—21.87	+1712	+ 3	—888	—34	0	+34	— 44

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
55	— 170	+1.44	+0.71	—0.30	+ 5	1.6	+ 4	25	25	3.5	2.5
56	— 116	+1.45	+0.68	—0.84	— 48	1.8	—43	25	25	3.5	3.5
							— 6				

Assumed $D\alpha$ 1895.0 = —56^s.200 $d.D\alpha$ = 0.000 p_z = 93.25

x = — 0.003 $d.D\mu$ = +0.033 [$pmn.3$] = 0.1400

y = + 0.328 pvv] = 0.1424

z = — 0.166 π = —0″.13 ±0″.027 r = ±0^s.017

	Obs. 1—30.	Obs. 31—56.
y =	+0^s.3272 assumed from the complete solution.	
$d.D\alpha$	—0^s.001	+0^s.004
π	—0″.20 ±0″.036	—0″.06 ±0″.040
r	±0^s.016	±0^s.019

Stars 254 and 255.

	All Observations.	'93, Oct.— '94, Nov.	'95, June — '96, June.
$d.\Delta\mu$	+0^s.009	y = +0^s.0884 assumed from the preceding solution.	
π	0″.00 ±0″.029	—0″.07 ±0″.051	+0″.04 ±0″.036
r_1	±0″.14	±0″.15	±0″.15
	61 obs.	29 obs.	32 obs.

Stars 255 and 256.

	All Observations.	'93, Oct.— '94, Nov.	'95, June — '96, June.
$d.\Delta\mu$	+0^s.022	+0^s.004	+0^s.034
π	—0″.24 ±0″.041	—0″.28 ±0″.072	—0″.25 ±0″.059
r_1	±0″.19	±0″.20	±0″.19
	56 obs.	27 obs.	29 obs.

ε CYGNI.

	+ 20^s			s							
1	+ 693	+0.43	+0.80	+0.97	+ 42	1.6	+34	21	21	3	3
2	+ 781	+0.45	+0.71	+0.09	— 43	1.5	—32	17	22	3.5	3
							+ 1				
3	+ 853	+0.75	—0.86	—0.63	— 64	2.0	—64	25	25	5	5
4	736	.75	.87	+ .54	+ 53	1.8	+48	19	19	5	5
5	787	.76	.90	+ .03	+ 2	1.8	+ 2	20	20	5	5
6	816	.77	.93	— .26	— 25	1.9	—24	22	24	5	5
7	789	.78	.95	+ .01	+ 9	2.0	+ 3	25	25	4.5	4.5
8	+ 783	+0.79	—0.95	+0.07	+ 9	1.2	+ 5	20	7	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
9	'95, Oct. 16.3	— 0.12	— 3.72	+ 995	+ 3	— 151	—35	0	+35	— 45
10	17	0.12	5.64	1081	3	229	35		36	45
11	22	1.14	14.02	1310	27	569	35		38	46
12	25	0.12	5.64	1044	3	229	37		39	46
13	26	7.06	5.64	902	167	229	37		39	46
14	29	0.12	0.12	798	3	5	29		40	47
15	Nov. 1	.12	5.64	1043	3	229	38		42	47
16	2.2	.12	5.64	1063	3	229	38		43	47
17	4	.12	0.12	878	3	5	47		44	48
18	12	— 0.12	— 0.12	+ 851	+ 3	— 5	—39	0	+47	— 49
19	96 May 26.7	—21.63	—29.17	+1609	+513	—1184	—58	0	+56	— 78
20	28	0.12	18.36	1631	3	745	58		55	79
21	30	.12	— 0.12	828	3	— 5	56		55	79
22	31	.12	+ .39	823	3	+ 16	53		54	79
23	June 1	.12	— .12	942	3	— 5	53		54	79
24	5	.12	.12	876	3	5	61		53	80
25	9.6	.12	0.12	821	3	5	57		52	81
26	10	.12	5.64	1147	3	229	56		52	81
27	13	— 0.12	— 0.12	+ 870	+ 3	— 5	—54	0	+51	— 82

1. Images breaking. 8. Clouds. Est'd mags.: 7.8, 7.5, 8.0. 11. Star 259, very poor image. 13. Clouds. Stars very faint. 14. Star 259, image breaking at times. 19. Star 259, fff. 20. Daylight illumination. 26. Est'd mags.: 7.2, 7.6, 7.6.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	6.05	7.50	7.30	11
3d	6.23	7.53	7.65	6

Normal Equations.

$$+82.66\,x + 79.41\,y - 29.91\,z - 0.68 = 0$$
$$+79.41\,x + 84.06\,y - 13.89\,z - 2.34 = 0$$
$$-29.91\,x - 13.89\,y + 68.00\,z + 2.89 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
9	+ 802	+0.79	—0.97	—0.12	— 9	1.9	— 9	25	23	4	4.5
10	811	.80	.97	— .21	— 17	1.9	—16	25	22	5	5
11	725	.81	.99	+ .65	+ 69	1.1	+38	24	16	3.5	1.5
12	774	.81	0.99	+ .16	+ 20	1.9	+19	25	22	5	5
13	796	.82	1.00	— .06	— 1	1.9	— 1	21	22	5	5
14	760	.83	1.00	+ .30	+ 36	2.0	+36	25	25	4.5	4.5
15	774	.84	1.00	+ .16	+ 22	1.9	+21	25	22	5	5
16	795	.84	1.00	— .05	+ 1	1.9	+ 1	25	22	5	5
17	825	.85	1.00	— .35	— 28	2.0	—28	25	25	5	5
18	+ 808	+0.87	—0.98	—0.18	— 10	2.0	—10	25	25	5	5
							+ 1				
19	+ 858	+1.40	+0.88	—0.68	— 66	0.7	—23	13	9	2.5	1
20	807	1.41	.87	— .17	— 14	1.5	—10	25	15	3.5	3
21	746	1.41	.85	+ .44	+ 48	1.9	+46	25	25	4.5	4
22	764	1.42	.84	+ .26	+ 30	1.4	+21	25	24	3	2
23	862	1.42	.83	— .72	— 68	2.0	—68	25	25	4.5	4.5
24	786	1.43	.79	+ .04	+ 10	1.7	+ 8	25	25	4.5	3
25	732	1.44	.74	+ .58	+ 66	1.3	+43	25	25	2.5	1.5
26	836	1.44	.74	— .46	— 38	1.6	—30	25	22	3.5	2.5
27	+ 783	+1.45	+0.71	+0.07	+ 16	2.0	+16	25	25	5	5
							0				

Assumed $D\alpha$ 1895.0 $= +20^s.790$

$x = -0.651$

$y = +0.609$

$z = -0.204$

$d.D\alpha = -0^s.065$

$d.D\mu = +0.061$

$\pi = -0''.13 \pm 0''.052$

$p_z = 28.75$

$[pnn.3] = 0.0987$

$[pvv] = 0.0992$

$r = \pm 0^s.022$

TABLE VII (Continued).

STARS 260, **261**, 262.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				+ 8s						
		s	s	*	*	*	*	*	*	*
1	'93, Oct. 17.3	— 0.09	— 0.09	+ 240	— 1	0	+17	0	—15	+829
2	21	.12	0.12	214	1	0	17		13	822
3	24	— .56	7.93	175	— 4	+ 6	17		13	816
4	Nov. 1	.00	0.00	231	0	0	16		11	801
5	2	.00	.00	204	0	0	16		10	799
6	3	.00	.00	266	0	0	16		10	797
7	4	.00	.00	208	0	0	16		10	795
8	5.2	.00	.00	194	0	0	15		10	793
9	6	.00	— .25	283	0	0	15		10	791
10	7	.00	.00	311	0	0	15		9	790
11	8	.00	.00	275	0	0	14		9	788
12	9	.00	.00	234	0	0	+14		9	786
13	16	0.00	0.00	+ 213	0	0	— 1	0	— 8	+772
14	94 June 6.7	— 0.04	—12.85	+ 730	0	+10	+ 1	0	— 8	+390
15	11	5.56	0.04	798	— 49	0	— 4		9	380
16	12	0.04	0.04	698	0	0	— 4		9	379
17	13	0.04	0.04	736	0	0	+ 2		9	377
18	14.6	12.85	12.85	837	114	+10	2		9	375
19	22	5.56	0.04	869	49	0	3		10	361
20	26	0.04	.04	841	0	0	5		10	353
21	28	0.04	.04	828	0	0	5		10	349
22	July 1	— 3.63	— 0.04	+ 807	— 32	0	+ 6	0	—10	+343
23	94 Sept. 19.4	— 0.09	— 1.86	+ 834	— 1	+ 1	+11	0	— 5	+193
24	25	.09	0.09	795	1	0	11		4	182
25	26	.09	5.61	876	1	+ 4	11		4	180
26	27	.09	0.09	885	1	0	11		4	178
27	28	— 0.09	— 0.09	+ 896	— 1	0	+11	0	— 3	+177

TABLE VII (Continued).

61 CYGNI, *prec.*

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+8s			s							
1	+1070	—1.20	—0.95	+0.30	— 32	0.8	—13	6	6	4	
2	1039	1.19	0.97	+0.61	— 1	0.8	0	11	11	3.5	
3	997	1.18	0.98	+1.03	+ 41	1.1	+23	9	13	0	
4	1037	1.16	1.00	+0.63	+ 1	0.6	0	11	11	4.5	
5	1009	1.16	1.00	+ .91	+ 28	1.2	+17	11	11	3	
6	1069	1.16	1.00	+ .31	— 31	1.1	—17	11	11	5	
7	1009	1.15	1.00	+0.91	+ 29	1.3	+19	11	11	4.5	
8	992	1.15	1.00	+1.08	+ 47	1.3	+31	11	11	4	
9	1079	1.15	1.00	+0.21	— 41	1.2	—25	13	12	3.5	
10	1107	1.15	1.00	— .07	— 62	1.1	—34	11	11	5	
11	1068	1.14	1.00	+ .32	— 30	1.3	—20	11	11	3.5	
12	1025	1.14	1.00	+0.75	+ 14	1.1	+ 8	11	11	5	
13	+ 976	—1.12	—0.98	+1.24	+ 63	1.3	+41	11	11	3	
							+ 2				
14	+1123	—0.57	+0.84	—0.23	— 5	1.8	— 4	25	18	4	4
15	1116	.55	.79	— .16	— 1	1.7	— 1	22	25	4	3
16	1064	.55	.78	+ .36	+ 52	1.9	+49	25	25	4	4
17	1106	.55	.77	— .06	+ 9	1.7	+ 8	25	25	4	3
18	1101	.55	.76	— .01	+ 14	1.7	+12	18	18	5	5
19	1174	.52	.67	— .74	— 62	2.0	—62	22	25	5	5
20	1189	.51	.62	— .89	— 77	1.8	—69	19	19	5	5
21	1172	.51	.59	— .72	— 61	1.7	—52	25	25	4	3.5
22	+1114	—0.50	+0.55	—0.14	— 4	1.6	— 3	22	25	3	3
							—14				
23	+1033	—0.28	—0.70	+0.67	+ 39	1.7	+33	25	24	3.5	3.5
24	1047	.26	.77	+ .53	+ 23	1.8	+21	25	25	4.5	4
25	1066	.26	.78	+ .34	+ 3	1.7	+ 3	25	22	5	4
26	1069	.26	.79	+ .31	+ 1	2.0	+ 1	25	25	5	5
27	+1080	—0.26	—0.80	+0.20	— 12	2.0	—12	25	25	5	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
28	'94, Nov. 3.3	— 3.69	— 0.09	+1006	— 33	0	+ 9	0	+ 4	+108
29	16.2	+ 1.01	+ 0.92	+ 933	+ 9	— 1	+ 7	0	+ 6	+ 83
30	95 June 13.6	— 0.02	— 0.02	+1417	0	0	— 9	0	+ 5	—312
31	18	.02	.02	1483	0	0	9		5	321
32	20	.02	.02	1398	0	0	9		5	325
33	21	0.02	0.02	1408	0	0	9		4	327
34	22	—12.83	—12.83	+1575	—114	+10	— 9	0	+ 4	—329
35	95 Sept. 30.3	— 0.12	— 0.12	+1576	— 1	0	—10	0	+11	—516
36	Oct. 1	.12	.12	1655	1	0	10		11	518
37	2	.12	.12	1659	1	0	10		12	520
38	5	0.12	.12	1601	1	0	11		12	526
39	9	3.73	.12	1614	33	0	11		13	533
40	12	0.12	.12	1568	1	0	12		13	538
41	13	.12	.12	1617	1	0	12		14	541
42	16	.12	.12	1622	1	0	13		14	547
43	17	0.12	0.12	1610	1	0	13		14	549
44	22	3.72	3.72	1762	33	+ 3	13		15	558
45	23	0.12	0.12	1637	1	0	14		16	560
46	25	0.12	— .12	1730	1	0	14		16	564
47	26	1.19	+ .05	1793	11	0	14		16	566
48	Nov. 1	5.64	— 0.12	1705	50	0	11		17	577
49	2	0.12	21.63	1677	1	+17	12		18	579
50	4	5.64	0.12	1709	50	0	12		18	583
51	12.2	— 0.12	— 0.12	+1739	— 1	0	—14	0	+20	—598
52	96 June 9.7	— 0.12	— 0.12	+2205	— 1	0	—22	0	+18	—995
53	10.6	5.64	0.12	2172	50		21		18	996
54	12	— 0.12	— 0.12	+2190	— 1	0	—21	0	+18	—999

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin($L-M$)	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
28	+1094	—0.16	—1.00	+0.06	— 29	1.6	—23	23	25	3	3
29	+1037	—0.12	—0.98	+0.63	+ 29	1.6	+23	24	24	2.5	3
							+ 7				
30	+1101	+0.45	+0.77	—0.01	+ 42	1.9	+40	25	25	4	4
31	1158	.47	.72	— .58	— 18	1.3	—12	25	25	2.5	2
32	1069	.47	.70	+ .31	+ 71	1.2	+43	25	25	3	3
33	1076	.47	.68	+ .24	+ 63	1.9	+60	25	25	4	4
34	+1137	+0.48	+0.67	—0.37	+ 3	1.3	+ 2	18	18	3.5	2.5
							+27				
35	+1060	+0.75	—0.82	+0.40	+ 34	2.0	+34	25	25	5	5
36	1137	.75	.83	— .37	— 42	2.0	—42	25	25	5	5
37	1140	.76	.83	— .40	— 46	2.0	—46	25	25	5	5
38	1075	.76	.86	+ .25	+ 19	2.0	+19	25	25	5	5
39	1050	.77	.89	+ .50	+ 42	2.0	+42	23	25	5	5
40	1030	.78	.91	+ .70	+ 63	2.0	+63	25	25	5	5
41	1077	.79	.92	+ .23	+ 15	2.0	+15	25	25	5	5
42	1075	.79	.94	+ .25	+ 17	2.0	+17	25	25	5	5
43	1061	.80	.95	+ .39	+ 30	2.0	+30	25	25	5	4.5
44	1176	.81	.97	— .76	— 85	1.3	—55	23	23	3.5	2
45	1078	.81	.97	+ .22	+ 12	1.6	+10	25	25	4	3.5
46	1167	.82	.98	—0.67	— 75	2.0	—75	25	25	5	5
47	1218	.82	0.99	—1.18	—127	1.0	—64	21	24	5	5
48	1084	.84	1.00	+0.16	+ 7	1.9	+ 7	22	25	5	4.5
49	1120	.84	1.00	— .20	— 30	1.8	—27	25	13	5	5
50	1082	.85	1.00	+ .18	+ 10	2.0	+10	22	25	5	5
51	+1146	+0.87	—0.99	—0.46	— 54	1.5	—40	25	25	5	5
							— 6				
52	+1205	+1.44	+0.80	—1.05	— 35	1.7	—30	25	25	3.5	3
53	1123	1.44	0.80	—0.23	+ 46	1.2	+28	22	25	2.5	1
54	+1187	+1.45	+0.78	—0.87	— 18	2.0	—18	25	25	5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
55	'96, June 13.6	— 0.12	— 0.12	+2131	— 1	0	—20	0	+18	—1002
56	16	0.12	0.12	2202	1		20		17	1007
57	17	— 0.12	— 0.12	+2212	— 1	0	—20	0	+17	—1010

3. Star 261 disappeared entirely on some threads. One of the differences between stars 260 and 261 rejected. 24. Observed without screen. Correction to reduce to an observation with the screen, +0s.064, is applied to DT. 41. Clouds? 47. Clouds. Star 260, ff; star 261, est'd mag., 8.0. A comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 46, shows a systematic apparent change of 0s.123 in the interval between stars 260 and 262, arising mainly in the observation of star 260. 51. Clouds.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	8.10	7.70	7.30	3	$+154.97\,x + 39.46\,y - 45.66\,z + 0.05 = 0$
5th	8.11	7.80	7.54	7	$+39.46\,x + 108.59\,y - 7.14\,z - 27.67 = 0$
6th	7.94	7.75	7.50	4	$-45.66\,x - 7.14\,y + 112.36\,z - 35.63 = 0$

STARS 263, 264, 265.

				+ 12s					
		s	s						
1	'93, Oct. 24.3	— 0.12	— 5.94	+ 606	— 1	+ 28	+19	0	+12
2	Nov. 2	—27.40	—27.40	572	—167	+129	17		12
3	3	0.00	0.00	595	0	0	17		12
4	4	.00	.00	575	0	0	17		12
5	5	.00	.00	665	0	0	17		12
6	6	.00	.00	577	0	0	17		12
7	7.2	.00	.00	611	0	0	17		12
8	8	.00	.00	567	0	0	17		12
9	9	.00	.00	643	0	0	+17		12
10	16	0.00	0.00	+ 601	0	0	— 1	0	+12
11	94 June 6.7	—33.05	—18.28	+ 676	—202	+ 86	+ 2	0	— 2
12	11	18.28	19.87	613	111	93	— 5		2
13	12	25.28	18.28	726	—154	86	— 4		2
14	13	— 0.04	— 7.32	+ 618	0	+ 34	+ 2	0	— 2

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
55	+1126	+1.45	+0.77	—0.26	+ 42	2.0	+42	25	25	5	5
56	1191	1.46	0.73	—0.91	— 23	1.7	—20	25	25	4	3
57	+1198	+1.46	+0.72	—0.98	— 31	1.7	—26	25	25	4.5	3
							— 4				

Assumed $D\alpha$ 1895.0 $= +\ 9^s.100$ $\quad d.D\alpha = +0^s.004$ $\quad p_z = 98.70$

$x = +\ 0.035$ $\quad d.D\mu = +0.026$ $\quad [pnn\,3] = 0.2537$

$y = +\ 0.265$ $\quad [pvv] = 0.2528$

$z = +\ 0.348$ $\quad \pi = +0''.21 \pm 0''.029$ $\quad r = \pm 0^s.023$

	Obs. 1—29.	Obs. 30—46, 48—57.
$d.D\alpha$	$+0^s.009$	$-0^s.048$
$d.D\mu$	$+0^s.026$	$+0^s.074$
π	$+0''.28 \pm 0''.038$	$+0''.12 \pm 0''.044$
r	$\pm 0^s.020$	$\pm 0^s.025$

Stars 261 and 262. $d.\Delta\mu = +0^s.014$, $\pi = +0''.24 \pm 0''.034$, $r_1 = \pm 0''.16$; 59 obs.

δ EQUULEI.

	+ 12s										
				s							
1	+ 664	—1.18	—0.97	—0.34	— 53	0.7	—19	11	7	1.5	
2	563	1.16	1.00	+ .67	+ 48	1.1	+26	10	10	3.5	
3	624	1.16	1.00	+ .06	— 13	1.2	— 8	11	11	4	
4	604	1.15	1.00	+ .26	+ 7	1.3	+ 5	11	11	4.5	
5	694	1.15	1.00	— .64	— 83	1.3	—54	11	11	4.5	
6	606	1.15	1.00	+ .24	+ 5	1.1	+ 3	11	11	3	
7	640	1.15	1.00	— .10	— 29	1.4	—20	11	11	5	
8	596	1.14	1.00	+ .34	+ 15	1.2	+ 9	11	11	3.5	
9	672	1.14	1.00	— .42	— 61	1.4	—43	11	11	5	
10	+ 612	—1.12	—0.98	+0.18	0	1.1	0	11	11	3	
							—10				
11	+ 560	—0.57	+0.85	+0.70	+ 56	0.8	+22	7	15	3.5	2
12	588	.55	.80	+ .42	+ 28	1.4	+20	15	14	4	4
13	652	.55	.79	— .22	— 36	1.4	—25	11	15	5	4.5
14	+ 652	—0.55	+0.78	—0.22	— 36	1.4	—25	19	15	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
15	'94, June 14.6	—12.85	—18.71	+ 555	— 78	+ 88	+ 3	0	— 2	
16	22	0.04	7.32	619	0	34	4		1	
17	26	7.32	12.72	564	45	60	6		1	
18	29	27.40	33.05	657	—167	155	6		1	
19	July 1	— 0.04	— 7.32	+ 556	0	+ 34	+ 8	0	— 1	
20	94 Sept. 19.4	— 7.37	—18.33	+ 559	— 45	+ 86	+13	0	+ 2	
21	26	0.09	3.53	634	1	17	12		2	
22	28	0.09	5.39	571	1	25	12		2	
23	Nov. 3.3	7.37	7.37	631	45	35	10		4	
24	26.2	— 0.79	— 5.39	+ 544	— 5	+ 25	+ 9	0	+ 5	
25	95 June 13.7	—12.83	—18.26	+ 578	— 78	+ 86	—11	0	+14	
26	18.6	12.83	16.34	567	78	77	11		14	
27	19	0.02	5.32	521	0	25	11		14	
28	20	29.07	19.85	718	177	93	11		14	
29	21	3.46	7.30	626	21	34	11		14	
30	26	— 3.46	— 7.30	+ 605	— 21	+ 34	—10	0	+14	
31	95 Sept. 30.4	— 7.40	— 5.41	+ 616	— 45	+ 25	—12	0	+18	
32	Oct. 1.3	1.80	7.40	599	11	35	12		18	
33	2	0.12	7.40	564	1	35	12		18	
34	5	0.12	7.40	621	1	35	12		18	
35	9	0.12	7.40	701	1	35	12		18	
36	12	7.40	9.08	570	45	43	15		18	
37	13	0.12	7.40	598	1	35	15		18	
38	16	5.42	7.40	671	33	35	16		18	
39	17	0.12	7.40	628	1	35	15		18	
40	22	1.80	10.86	592	11	51	16		18	
41	23	— 0.12	— 7.40	+ 629	— 1	+ 35	—16	0	+18	

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
15	+ 566	−0.55	+0.77	+0.64	+ 51	1.6	+41	18	14	5	5
16	656	.52	.68	− .26	− 39	1.6	−31	19	15	4.5	4.5
17	584	.51	.63	+ .46	+ 34	1.5	+26	15	12	5	5
18	650	.50	.59	− .20	− 32	0.6	−10	10	7	4	4
19	+ 597	−0.50	+0.56	+0.33	+ 21	1.4	+15	19	15	3	3
							+ 4				
20	+ 615	−0.28	−0.67	+0.15	+ 10	1.4	+ 7	15	15	3.5	3.5
21	664	.26	0.75	− .34	− 39	1.6	−31	19	17	5	4
22	609	.26	0.78	+ .21	+ 16	1.7	+14	19	16	5	5
23	635	.16	1.00	− .05	− 8	1.3	− 5	15	15	2.5	2.5
24	+ 578	−0.09	−0.94	+0.52	+ 50	1.0	+25	18	16	3	2.5
							+ 2				
25	+ 589	+0.45	+0.78	+0.41	+ 43	1.4	+30	18	15	3	3
26	569	.47	.73	+ .61	+ 63	1.2	+38	18	16	2.5	2
27	549	.47	.72	+ .81	+ 83	1.5	+62	19	16	3.5	3.5
28	637	.47	.71	− .07	− 5	1.3	− 3	9	14	3.5	3
29	642	.47	.70	− .12	− 10	1.4	− 7	17	15	3.5	3
30	+ 622	+0.49	+0.63	+0.08	+ 12	1.4	+ 8	17	15	4	3.5
							+21				
31	+ 602	+0.75	−0.80	+0.28	+ 39	1.5	+29	15	13	5	5
32	629	.75	.81	+ .01	+ 12	1.7	+10	18	15	5	5
33	656	.76	.81	− .26	− 15	1.7	−13	19	15	5	5
34	661	.76	.84	−0.31	− 20	1.7	−17	19	15	5	5
35	741	.77	.88	−1.11	−100	1.7	−85	19	15	5	5
36	571	.78	.90	+0.59	+ 70	1.6	+56	15	14	5	5
37	635	.79	.91	− .05	+ 6	1.5	+ 4	19	15	5	4
38	675	.79	.93	− .45	− 34	1.5	−26	16	15	5	4
39	665	.80	.93	− .35	− 24	1.6	−19	19	15	5	4.5
40	634	.81	.96	− .04	+ 8	1.6	+ 6	18	13	4.5	4.5
41	+ 665	+0.81	−0.97	−0.35	− 23	1.5	−17	19	15	4	4

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DI	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
42	'95, Oct. 25.3	— 0.12	— 3.56	+ 666	— 1	+17	—16	0	+18	
43	26	0.12	12.80	504	1	60	16		19	
44	Nov. 1	3.56	7.40	601	22	35	17		19	
45	2	1.80	7.40	590	11	35	17		19	
46	4	0.12	3.56	626	1	17	21		19	
47	11.2	3.56	7.40	576	22	35	18		19	
48	23	— 0.12	— 3.56	+ 561	— 1	+17	—18	0	+20	
49	96 June 5.7	— 0.12	— 7.40	+ 616	— 1	+35	—27	0	+29	
50	9	0.12	5.42	536	1	25	27		29	
51	10	1.80	7.40	719	11	35	24		29	
52	12	0.12	3.56	590	1	17	24		29	
53	13.6	.12	3.56	671	1	17	23		29	
54	16	.12	7.40	724	1	35	23		29	
55	17	0.12	5.40	645	1	25	23		29	
56	19	— 3.56	— 7.40	+ 656	— 22	+35	—23	0	+29	
		57. Rejected Observation.								
57	94 Nov. 16.2	—20.13	—14.87	+ 780	—123	+70	+ 9	0	+ 5	

1. Clouds near. 11. Star 265, image very diffuse. 18. Stars 263 and 265, ff; star 264, fff.
24. Daylight illumination. Star 263, fff; star 265, f. 31. Star 265, one thread rejected.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
4th	7.5	6.7	7.3	1	$+116.02\,x + 40.88\,y - 32.16\,z - 3.78 = 0$
5th	7.51	6.95	7.37	7	$+ 40.88\,x + 93.88\,y + 0.83\,z - 13.30 = 0$
6th	7.54	7.06	7.46	5	$- 32.16\,x + 0.83\,y + 85.61\,z + 0.95 = 0$

STARS 266, 267, 268.

				— 138s						
		s	s							
1	'95, June 13.7	—27.38	—27.38	— 314	+698	—901	+17	—1	—38	+ 39
2	18.6	12.70	18.26	246	+324	601	17	1	39	40
3	20	—15.85	—21.53	— 282	+403	—708	+17	- 1	—39	+ 40

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
42	+ 684	+0.82	−0.97	−0.54	− 42	1.7	−36	19	17	5	5
43	566	.82	0.98	+ .64	+ 76	1.5	+57	19	12	5	5
44	616	.84	1.00	+ .14	+ 26	1.6	+21	17	15	5	4.5
45	616	.84	1.00	+ .14	+ 26	1.7	+22	18	15	5	5
46	640	.85	1.00	− .10	+ 2	1.7	+ 2	19	17	5	5
47	590	.86	1.00	+ .40	+ 52	1.6	+42	17	15	5	5
48	+ 579	+0.90	−0.96	+0.51	+ 64	1.5	+48	19	17	4	3.5
							+ 5				
49	+ 652	+1.43	+0.85	−0.22	− 5	1.6	− 4	19	15	5	4
50	562	1.44	.81	+0.68	+ 85	1.2	+51	19	16	2.5	2
51	748	1.44	.81	−1.18	−101	1.2	−61	18	15	3	2
52	611	1.45	.79	+0.19	+ 36	1.6	+29	19	17	4.5	4
53	693	1.45	.78	−0.63	− 46	1.5	−34	19	17	3.5	3.5
54	764	1.46	.74	−1.34	−116	1.5	−87	19	15	4	3
55	675	1.46	.73	−0.45	− 27	1.6	−22	19	16	5	4
56	+ 675	+1.47	+0.71	−0.45	− 27	1.6	−22	17	15	5	4.5
							−19				
				57. Rejected Observation.							
57	+ 741	−0.12	−0.98	−1.11	−114			9	10	0	0

33. Observed without screen. Correction required to reduce to an observation with screen, +0s.052, is applied to *DT*. 43. Clouds. Est'd mags.: 8.0, 7.7, 8.0. 49. Daylight illumination. Clouds prevent observation of stars 266, 267, and 268. 57. Very poor observation. Reject.

Assumed $D\alpha$ 1895.0 = + 12.s630 $d.D\alpha$ = −0.s003 p_z = 74.84

x = − 0.028 $d.D\mu$ = +0.016 $[pnn.3]$ = 0.2392

y = + 0.155 $[pvv]$ = 0.2388

z = − 0.023 $\pi = -0''.02 \pm 0''.041$ $r = \pm 0^s.023$

LACAILLE 8777.

	− 138s										
				s							
1	− 500	+0.45	+0.79	0.00	− 18	1.1	−10	10	10	3.5	3.5
2	506	0.47	0.74	+0.06	− 11	1.3	− 7	12	15	3.5	3.5
3	− 570	+0.47	+0.72	+0.70	+ 53	1.3	+34	10	13	4.5	4.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
4	'95, June 21.6	+ 0.02	−12.83	− 106	− 1	− 422	+17	−1	−39	+ 40
5	22	− 1.59	14.54	33	+ 41	478	17	1	39	40
6	26	+ 0.02	− 7.30	− 339	− 1	− 240	+16	−1	−39	+ 41
7	95 Sept. 30.4	−29.17	−29.17	− 262	+744	− 960	+18	−1	−26	+ 64
8	Oct. 1	33.13	23.13	217	845	1090	18	1	26	65
9	2	15.95	21.63	274	407	712	19	1	26	65
10	9.3	27.48	27.48	404	701	904	19	1	24	67
11	12	0.08	12.93	37	2	425	23	5	23	68
12	16	0.08	7.40	381	2	243	24	5	22	68
13	17	1.69	14.64	127	43	482	24	5	22	69
14	23	0.08	12.93	87	2	425	25	5	21	70
15	25	.08	12.93	140	2	425	25	5	21	70
16	Nov. 1	.08	12.93	123	2	425	24	4	20	72
17	2	.08	12.93	178	2	425	26	4	20	72
18	4	.08	12.93	219	2	426	32	4	19	72
19	11.2	0.08	12.93	189	2	425	27	4	19	74
20	23	12.80	18.36	336	326	604	28	4	17	77
21	26	− 0.08	−12.93	− 220	+ 2	− 426	+28	−4	−17	+ 78
22	96 June 10.7	− 0.08	−14.28	− 122	+ 2	− 470	+39	−3	−66	+124
23	12	33.13	33.13	427	845	1090	38	3	66	124
24	13	12.80	18.36	287	326	604	36	3	66	125
25	16.6	0.08	12.93	164	2	425	36	3	66	125
26	17	0.08	12.93	150	2	425	36	3	66	126
27	19	12.80	18.36	283	326	604	36	3	66	126
28	22	− 0.08	−12.93	− 210	+ 2	− 426	+36	−3	−66	+127

16, 17. Light clouds near and possibly affecting the observations. 19. Images appear distorted.
28. Clouds near.

Epoch.	Estimated Magnitudes.			No. of Ests.
1st	6.50	6.65	5.75	2
2d	6.80	7.12	6.11	9
3d	7.08	7.30	5.75	4

Normal Equations.

$+43.10\,x + 39.32\,y - 4.82\,z + 1.62 = 0$

$+39.32\,x + 31.41\,y - 0.82\,z + 0.51 = 0$

$-4.82\,x - 0.82\,y + 30.75\,z + 0.57 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
4	— 512	+0.47	+0.71	+0.12	— 4	1.3	— 3	11	18	3	3
5	453	0 48	0.69	—0.47	— 63	1.3	—41	10	17	4.5	3.5
6	— 563	+0.49	+0.64	+0.63	+ 47	1.3	+31	11	15	3.5	3
							+ 1				
7	— 423	+0.75	—0.79	—0.77	— 80	1.1	—44	9	9	4.5	4
8	406	.75	.80	— .94	— 97	0.7	—34	7	7	3	2
9	522	.76	.80	+ .22	+ 19	1.2	+11	10	13	4.5	4
10	546	.77	.87	+0.46	+ 43	1.1	+24	10	10	4	2.5
11	397	.78	.89	—1.03	—106	1.4	—74	11	18	4.5	4
12	557	.79	.92	+0.57	+ 55	1.0	+28	11	15	3	2
13	500	.80	.93	.00	— 1	1.3	— 1	10	17	5	3.5
14	441	.81	.96	— .59	— 60	1.0	—30	11	18	3	1
15	494	.81	.97	— .06	— 7	1.4	— 5	11	18	4.5	3.5
16	474	.84	.99	— .26	— 27	1.4	—19	11	18	4.5	4
17	527	.84	0.99	+ .27	+ 26	1.3	+17	11	18	4.5	3
18	562	.85	1.00	+ .62	+ 62	1.3	+40	11	18	4	3.5
19	534	.86	1.00	+ .34	+ 34	1.3	+22	11	18	3.5	3
20	530	.90	0.97	+ .30	+ 31	1.3	+20	12	15	3	3
21	— 559	+0.91	—0.95	+0.59	+ 60	1.1	+33	11	18	2.5	2
							— 1				
22	— 496	+1.44	+0.82	—0.04	— 1	1.3	— 1	11	15	3.5	3.5
23	578	1.45	.80	+ .78	+ 81	0.9	+36	7	7	3.5	3
24	473	1.45	.79	— .27	— 24	1.4	—17	12	15	4.5	4
25	494	1.46	.75	— .06	— 3	1.4	— 2	11	18	4.5	3.5
26	480	1.46	.74	— .20	— 17	1.4	—12	11	18	5	3.5
27	468	1.47	.72	— .32	— 29	1.4	—20	12	15	5	4
28	— 540	+1.48	+0.68	+0.40	+ 45	1.1	+25	11	18	2	1.5
							+ 1				

Assumed $D\alpha$ 1895.0 = —138^s.500 $d.D\alpha$ = —0^s.023 p_z = 27.90

x = — 0.227 $d.D\mu$ = +0.021 [$pnn.3$] = 0.0913

y = + 0.207 [pvv] = 0.0916

z = — 0.049 π = **—0″.04±0″.053** r = ±0^s.020

TABLE VII (Continued).

STARS 269, 270, 271.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s	− 30s						
1	'94, Nov. 26.2	−18.33	−18.33	− 268	+ 2	0	− 1	0	+ 2	+ 3
2	Dec. 2	0.09	0.09	381	0		2	−1	2	2
3	3	1.78	0.01	306	0		2	0	2	2
4	4	− 0.01	− 0.01	− 299	0	0	− 2	−1	+ 2	+ 2
5	95 June 18.7	− 0.02	− 0.02	− 250	0	0	+ 1	0	− 4	− 13
6	20	− 0.02	− 0.02	185	0		1		4	13
7	21.6	+ 5.50	+ 5.50	305	− 1		1		4	13
8	22	5.50	5.50	337	0		1		4	13
9	26	5.50	5.50	267	− 1		1		4	14
10	July 1	+ 5.50	+ 5.50	− 304	0	0	+ 1	0	− 3	− 14
11	95 Oct. 1.4	+ 5.40	+ 5.40	− 283	− 1	0	+ 1	0	0	− 21
12	5	5.40	5.40	204	0		1	0	0	22
13	9.3	5.40	5.40	263	1		1	0	0	22
14	12	5.40	5.40	251	0		1	−1	0	22
15	13	5.40	5.40	228	1		2	1	0	22
16	16	5.40	5.40	293	0		2	1	0	22
17	17	5.40	5.40	348	1		2	1	0	22
18	22	5.40	5.40	236	0		2	1	0	22
19	23	5.40	5.40	209	1		2	1	0	23
20	25	5.40	5.40	212	0		2	1	0	23
21	Nov. 1	5.40	5.40	278	1		1	1	+ 1	23
22	2	5.40	5.40	317	0		2	1	1	23
23	11	5.40	+ 5.40	190	1		2	1	1	23
24	12	5.40	−12.85	341	0		2	1	1	23
25	20.2	+ 5.40	+ 5.47	264	− 1		2	1	1	24
26	23	− 0.12	− 0.12	− 294	0	0	+ 1	−1	+ 1	− 25

TABLE VII (Continued).

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No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	— 30^s			^{s}							
1	— 262	—0.09	—0.97	—0.28	— 29	1.3	—19	15	15	3	2.5
2	380	.08	.94	+ .90	+ 89	1.6	+71	25	25	2.5	2.5
3	304	.08	.93	+ .14	+ 13	1.8	+12	24	25	3.5	3.5
4	— 298	—0.07	—0.93	+0.08	+ 7	1.8	+ 6	25	25	4	4
							+18				
5	— 266	+0.47	+0.81	—0.24	— 33	1.8	—30	25	25	3.5	3.5
6	201	.47	.79	— .89	— 98	1.8	—88	25	25	4	4
7	322	.47	.78	+ .32	+ 23	1.6	+18	22	22	4.5	3
8	353	.48	.77	+ .63	+ 54	1.7	+46	22	22	4	3.5
9	285	.49	.72	— .05	— 13	1.6	—10	22	22	4	3
10	— 320	+0.50	+0.66	+0.30	+ 22	1.3	+14	22	22	2.5	1.5
							— 8				
11	— 304	+0.75	—0.74	+0.14	+ 18	1.9	+17	22	22	5	5
12	225	.76	.78	— .65	— 60	1.9	—57	22	22	5	5
13	285	.77	.82	— .05	0	1.9	0	22	22	4.5	4.5
14	273	.78	.85	— .17	— 12	1.9	—11	22	22	5	5
15	250	.79	.86	— .40	— 34	1.9	—32	22	22	5	4.5
16	314	.79	.88	+ .24	+ 30	1.9	+28	22	22	5	5
17	370	.80	.89	+ .80	+ 86	1.9	+82	22	22	5	4.5
18	257	.81	.93	— .33	— 26	1.9	—25	22	22	5	4.5
19	232	.81	.93	— .58	— 51	1.6	—41	22	22	3	3
20	234	.82	.95	— .56	— 49	1.6	—39	22	22	3.5	3
21	301	.84	.98	+ .11	+ 18	1.8	+16	22	22	4.5	4
22	338	.84	0.98	+ .48	+ 55	1.9	+52	22	22	5	4.5
23	212	.86	1.00	— .78	— 71	1.9	—67	22	22	4.5	4.5
24	362	.87	1.00	+ .72	+ 79	1.5	+59	22	11	4.5	4
25	287	.89	0.99	— .03	+ 4	1.2	+ 2	22	21	1.5	1
26	— 318	+0.90	—0.98	+0.28	+ 35	1.5	+26	19	19	3.5	2.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
27	'95, Nov. 26.2	+ 5.40	+ 5.40	— 202	0	0	+ 2	—1	+ 1	— 25
28	Dec. 2	— 0.12	— 9.08	— 186	0	0	+ 2	—1	+ 1	— 26
29	96 June 13.7	+ 5.40	+ 5.40	— 207	0	0	+ 2	—1	— 5	— 41
30	16	5.40	5.40	329	— 1		2	0	5	41
31	17	5.40	5.40	201	0		2	1	5	41
32	19.6	5.40	5.40	268	— 1		2	0	5	41
33	22	+ 5.40	+ 5.40	272	0		2	1	5	41
34	29	—21.63	— 5.64	235	+ 2		2	0	4	41
35	30	+ 5.40	+ 5.40	— 279	— 1	0	+ 2	—1	— 4	— 42

1, 3. Light clouds. 4. Daylight illumination. 10. Star 271, ff. 24. Clouds near. Est'd mags.: 7.6, 7.3, 8.0. 29, 30. Daylight illumination. 33. Clouds.

A comparison of the differences between the stars, with respect to their transits on individual threads, for several dates, indicate that the large residuals are due to systematic errors peculiar to the observation of one or another star on a given night. The relative apparent displacement occurs sometimes on star 270, sometimes on star 271.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	6.43	6.82	7.85	6
3d	6.25	7.00	7.95	4

Normal Equations.

$$+100.01\,x + 78.85\,y - 33.02\,z - 1.71 = 0$$
$$+ 78.85\,x + 80.64\,y - 13.16\,z - 1.96 = 0$$
$$- 33.02\,x - 13.16\,y + 74.84\,z + 4.11 = 0$$

STARS 272, 273, 274.

		s	s	— 9s					
1	'94, Dec. 4.2	— 5.31	—12.69	— 376	— 5	+ 32	— 4	0	— 1
2	5	—18.25	—18.25	— 435	— 18	+ 46	— 4	0	— 1
3	95 June 18.7	—23.33	—27.38	— 392	— 23	+ 68	+ 2	0	— 2
4	20	18.26	18.26	467	18	46	3		2
5	21.6	3.46	3.46	396	3	9	2		2
6	22	5.32	5.32	403	5	13	3		2
7	26	7.30	7.30	381	7	18	2		2
8	28	— 7.30	—12.83	— 451	— 7	+ 32	+ 2	0	— 2

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	— 9^s			^{s}							
27	— 225	+0.91	—0.97	—0.65	— 57	1.6	—46	22	22	3	3
28	— 210	+0.92	—0.94	—0.80	— 72	1.3	—47	19	14	2.5	2.5
							— 5				
29	— 252	+1.46	+0.85	—0.38	— 39	1.6	—31	22	22	3.5	3
30	374	1.46	.82	+ .84	+ 83	1.7	+71	22	22	5	4
31	246	1.46	.81	— .44	— 45	1.7	—38	22	22	4.5	4
32	313	1.47	.79	+ .23	+ 22	1.6	+18	22	22	4	4
33	317	1.48	.75	+ .27	+ 27	1.5	+20	23	22	3	2.5
34	276	1.50	.67	— .14	— 14	1.3	— 9	15	22	3.5	2
35	— 325	+1.50	+0.66	+0.35	+ 35	1.9	+33	22	22	5	4.5
							+ 9				

Assumed $D\alpha$ 1895.0 $= -30^s.290$ $\quad d.D\alpha = -0^s.007$ $\quad p_z = 54.98$

$x = -0.072$ $\quad d.D\mu = +0.008$ $\quad [pnn.3] = 0.2344$

$y = +0.083$ $\quad [pvv] = 0.2320$

$z = -0.072$ $\quad = -0''.06 \pm 0''.062$ $\quad r = \pm 0^s.029$

	Stars 269 and 270.	Stars 270 and 271.
$d.\Delta\mu$	—0^s.005	+0^s.013
π	+0″.10 ±0″.074	—0″.21 ±0″.078
r_1	±0″.26	±0″.27

$\varkappa$ PEGASI.

	— 9^s			^{s}							
1	— 354	—0.07	—0.94	—0.16	— 29	1.3	—19	16	12	4	4
2	— 412	—0.07	—0.93	+0.42	+ 29	1.5	+22	15	15	4.5	4.5
							+ 2				
3	— 347	+0.47	+0.82	—0.23	— 48	1.1	—26	12	10	3.5	3
4	438	.47	.80	+ .68	+ 44	1.3	+29	15	15	4	3
5	390	.47	.79	+ .20	— 4	1.5	— 3	17	17	4.5	4
6	394	.48	.78	+ .24	0	1.4	0	16	16	4	2.5
7	370	.49	.73	.00	— 22	1.4	—15	15	15	4	4
8	— 426	+0.49	+0.71	+0.56	+ 34	1.2	+20	15	18	3	2
							+ 1				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
9	'95, Oct. 1.4	— 5.42	— 5.42	— 363	— 5	+14	+ 3	0	— 1	
10	5	16.44	18.36	432	16	46	3		1	
11	9.3	7.40	7.40	359	7	18	3		2	
12	12	5.42	5.42	319	5	14	3		2	
13	13	7.40	7.40	367	7	18	3		2	
14	16	5.42	5.42	377	5	13	3		2	
15	17	7.40	7.40	319	7	18	4		2	
16	22	19.95	17.61	369	20	44	4		2	
17	23	18.36	18.36	424	18	46	4		2	
18	25	7.40	7.40	429	7	18	4		2	
19	Nov. 1	7.40	7.40	400	7	19	4		3	
20	2	7.40	7.40	399	7	18	4		3	
21	11	7.40	7.40	398	7	19	4		3	
22	20.2	7.40	7.40	328	7	18	3		3	
23	26	— 7.40	— 8.81	— 298	— 7	+22	+ 4	0	— 3	
24	96 June 16.7	— 7.40	— 7.40	— 352	— 7	+18	+ 5	0	— 4	
25	17	3.56	3.56	343	4	9	5		4	
26	19	7.40	7.40	377	7	19	5		4	
27	22.6	3.56	7.40	392	4	18	6		4	
28	29	7.40	7.40	423	7	19	5		4	
29	30	— 3.56	— 3.56	— 432	— 4	+ 9	+ 5	0	— 4	

1, 2. Daylight illumination. 14. Observed without screen; no correction corresponding is applied. 16. Images breaking at times. 23. Star 274, image breaking badly. 24. Daylight illumination.

Epoch.	Estimated Magnitudes.			No. of Ests.
2d	7.8	6.5	7.8	1
3d	7.70	6.44	7.77	6
4th	7.68	6.68	7.80	5

Normal Equations.

$$+59.05\,x + 49.32\,y - 13.80\,z + 0.59 = 0$$
$$+49.32\,x + 51.13\,y - 4.12\,z - 0.81 = 0$$
$$-13.80\,x - 4.12\,y + 42.13\,z + 3.65 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				^{s}							
9	— 352	+0.75	—0.72	—0.18	— 14	1.6	—11	16	16	5	5
10	400	.76	.75	+ .30	+ 35	1.6	+28	16	15	5	5
11	347	.77	.80	— .23	— 18	1.5	—14	15	15	5	5
12	309	.78	.83	— .61	— 55	1.4	—38	16	16	3.5	3
13	355	.79	.84	— .15	— 8	1.5	— 6	15	15	5	4.5
14	368	.79	.87	— .02	+ 5	1.6	+ 4	16	16	5	5
15	306	.80	.87	— .64	— 56	1.5	—42	15	15	5	4.5
16	343	.81	.91	— .27	— 19	1.5	—14	14	14	5	4.5
17	394	.81	.92	+ .24	+ 32	1.4	+22	15	15	4	4
18	416	.82	.93	+ .46	+ 54	1.5	+40	15	15	5	5
19	387	.84	.97	+ .17	+ 27	1.5	+20	15	15	5	4.5
20	387	.84	0.97	+ .17	+ 27	1.5	+20	15	15	5	4.5
21	385	.86	1.00	+ .15	+ 25	1.5	+19	15	15	4.5	4.5
22	317	.89	1.00	— .53	— 42	1.0	—21	15	15	2	1
23	— 282	+0.91	—0.98	—0.88	— 76	1.1	—42	15	14	2	2
							— 2				
24	— 340	+1.46	+0.83	—0.30	— 31	1.6	—25	15	15	5	5
25	337	1.46	.82	— .33	— 34	1.7	—29	17	17	5	5
26	364	1.47	.80	— .06	— 6	1.4	— 4	15	15	4	4
27	376	1.48	.77	+ .06	+ 6	1.2	+ 4	17	15	3.5	2
28	410	1.50	.68	+ .40	+ 42	1.3	+27	15	15	3.5	3
29	— 426	+1.50	+0.67	+0.56	— 58	1.5	—44	17	17	4	3
							—12				

Assumed $D\alpha$ 1895.0 = — $9^s.370$
x = — 0.241
y = + 0.237
z = — 0.143

$d.D\alpha$ = —0.024
$d.D\mu$ = +0.024

π = —0".10 ±0".043

p_z = 33.39
[pnn.3] = 0.0702
pvv] = 0.0692
r = ±0^s.018

TABLE VII (Continued).

STARS 275, 276, 277.

No.	Date.	c_1'	c_2'	$D1$	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	+ 28s *	*	*	*	*	*	*
		s	s							
1	'94, Nov. 26.2	— 0.09	— 0.09	+ 112	0	0	+23	0	+16	+ 3
2	27	.09	.09	128	0	0	20	+1	16	3
3	Dec. 2	.09	.09	158	0	0	47	0	16	3
4	3	.01	.01	221	0	0	47	0	16	3
5	4	.01	.01	195	0	0	40	1	16	3
6	5	.01	.01	193	0	0	39	0	16	2
7	13	0.01	.01	213	0	0	36	1	17	2
8	14	5.53	— 0.01	133	+18	0	36	0	17	2
9	17	—27.37	+ 1.84	+ 27	+88	+ 4	+39	+1	+17	+ 2
10	95 June 26.7	— 0.02	— 5.54	+ 303	0	—12	—25	0	+33	— 17
11	28	.02	0.02	306		0	25		33	17
12	July 1	.02	1.28	114		— 3	25		33	17
13	4.6	— 0.02	— 0.02	+ 180	0	0	—25	0	+33	— 17
14	95 Oct. 13.4	— 0.12	— 0.12	+ 282	0	0	—37	+1	+36	— 26
15	16	.12	.12	296	0	0	38	1	36	27
16	17	.12	.12	321	0	0	37	1	36	27
17	23.3	.12	.12	317	+ 1	0	39	1	36	28
18	25	.12	.12	288	0	0	39	1	36	28
19	Nov. 1	.12	.12	291	0	— 1	37	1	36	28
20	2	.12	.12	209	0	0	41	1	35	29
21	12	.12	.12	334	1	0	42	1	35	30
22	20.2	.12	.12	362	0	0	35	1	35	30
23	23	.12	.12	353	0	0	44	1	35	31
24	26	.12	.12	338	0	0	44	1	35	31
25	Dec. 2	.12	.12	273	+ 1	— 1	45	1	35	32
26	5	— 0.12	— 0.12	+ 334	0	0	—48	+1	+35	— 32

TABLE VII (Continued).

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No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	+ 28^s			^{s}							
1	+ 154	—0.09	—1.00	+0.96	+ 73	1.7	+62	25	25	3	2.5
2	148	.09	1.00	+1.02	+ 78	1.5	+58	25	25	2.5	2
3	224	.08	0.99	+0.26	+ 4	1.6	+ 3	25	25	2.5	2.5
4	287	.08	.99	— .37	— 60	1.7	—51	25	25	3.5	3.5
5	255	.07	.98	— .05	— 27	1.7	—23	25	25	3.5	3.5
6	250	.07	.98	.00	— 23	2.0	—23	25	25	5	5
7	269	.05	.95	— .19	— 41	1.7	—35	25	25	3.5	3.5
8	206	.04	.94	+ .44	+ 22	1.6	+18	22	25	3.5	3
9	+ 178	—0.04	—0.92	+0.72	+ 50	1.0	+25	10	23	4.5	4.5
							+ 4				
10	+ 282	+0.49	+0.85	—0.32	— 63	1.6	—50	25	22	3	2.5
11	297	.49	.83	—0.47	— 77	1.8	—69	25	25	4	3
12	102	.50	.80	+1.48	+118	1.3	+77	25	24	4	4
13	+ 171	+0.51	+0.77	+0.79	+ 52	1.8	+47	25	25	4	3
							+ 1				
14	+ 256	+0.79	—0.73	—0.06	+ 10	2.0	+10	25	25	5	5
15	268	.79	.77	— .18	— 1	2.0	— 1	25	25	5	5
16	294	.80	.78	— .44	— 27	2.0	—27	25	25	4.5	4.5
17	288	.81	.84	— .38	— 18	1.7	—15	25	25	3.5	3
18	258	.82	.86	— .08	+ 11	2.0	+11	25	25	5	5
19	262	.84	.91	— .12	+ 10	2.0	+10	25	25	5	4.5
20	175	.84	.92	+ .75	+ 96	1.3	+62	25	25	4.5	4
21	299	.87	0.97	— .49	— 24	1.8	—22	25	25	4.5	4
22	333	.89	1.00	— .83	— 57	1.3	—37	25	25	2.5	1
23	314	.90	1.00	— .64	— 37	1.3	—34	25	25	2.5	1.5
24	299	.91	1.00	— .49	— 22	1.7	—19	25	25	3	2.5
25	231	.92	0.99	+ .19	+ 47	1.8	+42	25	25	3.5	3.5
26	+ 290	+0.93	—0.98	—0.40	— 12	1.9	—11	25	25	5	4
							— 2				

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
27	'96, June 28.7	− 0.12	− 0.12	+ 320	0	0	−58	+1	+51	− 51
28	29	.12	.12	310	0	0	58	0	51	51
29	30	.12	.12	310	0	0	58	1	51	51
30	July 1.6	.12	.12	331	+ 1	0	58	0	51	51
31	4	.12	.12	333	0	0	58	1	51	51
32	6	− 0.12	− 0.12	365	0	− 1	58	0	51	51
33	7	+ 1.07	+ 1.07	+ 315	− 3	+ 2	−55	+1	+51	− 52

6. Through haze and clouds. 7, 8, 9. Daylight illumination. 9. Star 275, fff; star 277, ff. 10. Daylight illumination. Images breaking. 12. A comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 11, shows that star 276 was observed here systematically early, by about 0s.10, with reference to stars 275 and 277.

Epoch.	Estimated Magnitudes.			No. of Ests.	Normal Equations.
2d	7.63	6.13	8.07	3	$+99.43\,x + 74.32\,y - 32.38\,z - 5.72 = 0$
3d	7.68	5.98	7.75	12	$+74.32\,x + 86.45\,y + 2.94\,z - 14.31 = 0$
4th	7.70	5.91	7.74	7	$-32.38\,x + 2.94\,y + 77.09\,z + 1.61 = 0$

STARS 278, 279, 280.

				−18s						
		s	s							
1	'93, Nov. 9.3	+ 0.01	+ 0.01	−2651	0	0	+12	0	− 4	+568
2	20	+ 0.01	+ 0.01	2520	0	0	− 1		− 1	553
3	29	−10.03	−10.03	2424	+144	−234	− 6		+ 1	540
4	Dec. 19.2	− 5.11	− 5.11	−2394	+ 74	−116	+ 9	0	+ 5	+513
5	94 July 8.7	−12.85	−12.33	−2078	+185	−280	+ 7	0	− 5	+239
6	11	0.04	0.04	2216	1	1	6		6	236
7	14	0.09	0.09	2228	1	2	9		6	231
8	20.6	− 0.09	− 1.77	2046	+ 1	− 40	8		6	223
9	21	+ 5.43	+ 5.43	2210	− 78	+123	10		7	222
10	Aug. 1	− 0.09	− 0.09	−2213	+ 1	− 2	+ 8	0	− 7	+206
11	94 Nov. 3.3	+ 5.43	+ 5.43	−2160	− 78	+123	+ 7	0	+ 1	+ 84
12	26	− 0.09	− 0.09	−2036	+ 1	− 2	+ 6	0	+ 6	+ 47

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
27	+ 263	+1.49	+0.82	—0.13	+ 8	1.8	+ 7	25	25	3.5	3.5
28	252	1.50	.81	— .02	+ 18	1.9	+17	25	25	4.5	4
29	253	1.50	.80	— .03	+ 18	1.8	+16	25	25	4	3.5
30	274	1.50	.79	— .24	— 4	2.0	— 4	25	25	5	4.5
31	276	1.51	.77	— .26	— 3	1.7	— 3	25	25	4	3
32	306	1.52	.74	— .56	— 31	1.9	—32	25	25	4.5	4
33	+ 259	+1.52	+0.73	—0.09	+ 14	1.8	+13 + 2	24	24	4.5	4

19. Through light clouds. 20. The comparison of this with observation 21, is similar to the comparison noted under observation 12.

Assumed $D\alpha$ 1895.0 $= +28^s.250$ $d.D\alpha = -0^s.038$ $p_z = 42.71$

$x = -0.385$ $d.D\mu = +0.050$ $[pmn.3] = 0.1608$

$y = +0.503$ $[pvv] = 0.1596$

$z = -0.201$ $\pi = -0''.16 \pm 0''.060$ $r = \pm 0^s.024$

BRADLEY 3077.

	—19s			s							
1	—1075	—1.14	—0.88	+1.25	+103	1.1	+57	13	13	5	
2	969	1.11	.96	+0.19	— 4	1.2	— 2	13	13	2.5	
3	979	1.09	.99	+0.29	+ 5	1.5	+ 4	18	18	3.5	
4	— 909	—1.03	—0.98	—0.41	— 64	1.7	—54 + 1	24	24	3.5	
5	— 932	—0.48	+0.85	—0.18	— 3	1.5	— 2	18	19	3	3
6	980	.47	.82	+ .30	+ 45	1.5	+34	19	19	4	3
7	995	.46	.80	+ .45	+ 58	1.4	+41	19	19	2.5	2.5
8	860	.45	.73	— .90	— 77	1.5	—58	19	18	3	3
9	940	.44	.72	— .10	+ 2	1.9	+ 2	22	22	4	4.5
10	—1007	—0.41	+0.57	+0.57	+ 66	1.5	+50 +11	19	19	4	3
11	—1023	—0.16	—0.83	+0.73	+ 55	1.6	+44	22	22	3	3
12	— 978	—0.09	—0.93	+0.28	+ 6	1.5	+ 4	19	19	4	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
13	'94, Dec. 4.3	− 0.01	− 0.01	−1981	0	0	+11	0	+ 7	+ 38
14	5	+ 5.51	− 3.45	−1837	− 79	− 78	+11	0	+ 8	+ 35
15	95 July 19.6	+ 1.90	− 7.30	−1378	− 27	−166	− 8	0	0	−273
16	22	+ 5.50	+ 5.50	−1648	− 79	+125	− 8	0	− 1	−277
17	95 Dec. 2.3	+ 5.40	+ 5.40	−1616	− 78	+123	−12	0	+12	−459
18	5	3.64	3.64	1515	52	83	13		13	463
19	12.2	1.80	1.80	1484	26	41	13		14	473
20	15	5.40	5.40	1543	78	123	13		15	477
21	23	3.64	3.64	1516	52	83	12		16	488
22	26	+ 5.40	+ 5.40	−1571	− 78	+123	−11	0	+17	−492
23	96 July 7.7	+ 3.64	+ 3.64	−1170	− 52	+ 83	−15	0	+ 6	−756
24	8	5.40	5.40	1249	78	123	15		6	757
25	10	5.40	5.40	1188	78	123	15		5	760
26	16.6	6.91	0.01	921	100	0	13		5	768
27	20	+ 5.40	+ 5.40	−1235	− 78	+123	−15	0	+ 4	−774

1. Star 280, fff. A comparison of the differences between the stars, with respect to their transits on the individual threads, with observation 2, shows that star 280 was observed here systematically late by 0s.14 with reference to stars 278 and 279. 6. Through light clouds. 14. Star 280, f. 15. Star 280, fff. 23. Daylight illumination. 26. Star 280 invisible frequently.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	7.0	6.2	8.0	1
5th	7.34	5.96	7.92	5
6th	7.18	5.70	8.05	4

Normal Equations.

$+66.04\,x + 20.62\,y - 9.90\,z + 2.68 = 0$

$+20.62\,x + 56.68\,y + 5.50\,z - 1.86 = 0$

$-9.90\,x + 5.50\,y + 51.99\,z - 11.00 = 0$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
13	— 925	—0.07	—1.00	—0.25	— 47	1.6	—38	19	19	4	4
14	— 940	—0.07	—1.00	—0.10	— 33	1.8	—30	22	17	5	5
							— 5				
15	— 852	+0.54	+0.77	—0.98	— 82	0.9	—37	20	15	2.5	1.5
16	— 888	+0.55	+0.74	—0.62	— 48	1.9	—45	22	22	4.5	4.5
							—41				
17	—1030	+0.92	—1.00	+0.80	+ 60	1.6	+48	22	22	3.5	3.5
18	947	.93	1.00	— .03	— 24	1.7	—20	21	21	4	4
19	941	.95	1.00	— .09	— 29	1.5	—22	20	20	4	3
20	973	.96	0.99	+ .23	+ 3	1.7	+ 3	22	22	4	4
21	969	.98	0.96	+ .19	0	1.8	0	21	21	4.5	4.5
22	—1012	+0.99	—0.95	+0.62	+ 42	1.7	+35	22	22	4.5	4
							+ 7				
23	— 904	+1.52	+0.86	—0.46	— 26	1.5	—20	21	21	4	2.5
24	970	1.52	.85	+0.20	+ 39	1.8	+35	22	22	5	4
25	913	1.53	.83	—0.37	— 19	1.8	—17	22	22	4.5	4
26	797	1.54	.77	—1.53	—136	0.8	—54	21	16	0	0
27	— 975	+1.55	+0.81	+0.25	+ 44	1.6	+35	22	22	3	3
							— 4				

Assumed $D\alpha$ 1895.0 $= -19^s.950$ $\quad d.D\alpha = -0^s.002$ $\quad p_z = 49.04$

$x = -0.016$ $\quad d.D\mu = +0.002$ $\quad [pnn.3] = 0.1322$

$y = +0.019$ $\quad [pvv] = 0.1316$

$z = +0.207$ $\quad \pi = +0''.09 \pm 0''.032$ $\quad r = \pm 0^s.025$

	Obs. 1—16.	Obs. 17—27.
$y = +0^s.0184$ assumed from the complete solution.		
$d.\Delta\alpha$	$+0^s.003$	$-0^s.007$
π	$+0''.08 \pm 0''.048$	$+0''.11 \pm 0''.045$
r	$\pm 0^s.028$	$\pm 0^s.024$

Stars 278 and 279. $d.\Delta\mu = -0^s.003$, $\pi = +0''.17 \pm 0''.037$, $r_1 = \pm 0''.12$; 27 obs.

TABLE VII (Continued).

STARS 281, 282, 283.

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s	*s*	− 7*s*						
1	'93, Nov. 2.4	0.00	0.00	− 844	0	0	− 4	0	− 1	− 81
2	6.3	0.00	− 5.35	916	0	− 9	4		− 1	80
3	Dec. 10.2	− 0.04	0.04	817	0	0	2		0	73
4	12	1.11	9.31	898	+ 1	16	4		0	73
5	17	7.26	7.26	869	+ 7	12	3		0	72
6	20	− 0.06	−34.51	− 709	0	−59	− 3	0	0	− 72
7	94 July 13.7	− 0.09	− 0.09	−1002	0	0	− 3	0	− 3	− 32
8	15.6	7.37	7.37	860	+ 7	−13	3		3	32
9	26	14.61	14.61	849	13	25	3		3	30
10	28	23.44	29.14	836	21	50	3		3	29
11	29	18.82	19.57	864	+17	33	3		3	29
12	Aug. 2	− 0.09	− 1.77	− 989	0	− 3	− 4	0	− 3	− 28
13	94 Dec. 2.3	− 0.09	− 0.09	−1055	0	0	− 5	0	− 1	− 5
14	3	.01	0.01	912		0	4		1	5
15	13.2	.01	21.76	958		−37	3		1	3
16	17	− 0.01	− 0.01	−1017	0	0	− 4	0	− 1	− 3
17	95 July 12.7	−17.00	−14.80	−1090	+15	−25	− 2	0	− 4	+ 37
18	21.6	0.02	0.02	960	0	0	3		4	39
19	24	−19.85	−19.85	− 996	+18	−34	− 3	0	− 4	+ 40
20	95 Nov. 20.3	− 0.12	− 0.91	− 995	0	− 2	+ 3	0	− 3	+ 63
21	23	+ 5.40	+ 5.40	1075	− 5	+ 9	4		3	63
22	26	− 5.64	− 5.64	−1078	+ 5	−10	+ 4	0	− 3	+ 64

TABLE VII (Continued).

WEISSE-BESSEL XXIII, 175.

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
	-7^s			^{s}							
1	− 930	−1.16	−0.81	−0.50	− 28	1.1	−15	11	11	3	
2	1010	1.15	0.85	+ .30	+ 52	1.1	+27	11	8	2.5	
3	892	1.06	1.00	− .88	− 70	1 5	−52	19	19	3	
4	990	1.05	1.00	+ .10	+ 27	0.8	+11	17	12	0.5	
5	949	1.04	0.99	−0.31	− 14	1.0	− 7	21	21	0.5	
6	− 869	−1.03	−0.98	−1.11	−120	1.5	−30	19	6	1	
							−11				
7	−1040	−0.47	+0.82	+0.60	+ 88	1.5	+66	19	19	3	3
8	904	.46	.80	− .76	− 49	1.4	−34	15	15	4	4
9	897	.43	.67	− .83	− 57	1.3	−37	17	17	3	2.5
10	900	.43	.64	− .80	− 55	1.1	−30	6	9	5	4
11	915	.42	.63	− .65	− 41	1.0	−20	12	13	5	3
12	−1027	−0.41	+0.57	+0.47	+ 70	1.5	+52	19	18	3	3
							0				
13	−1066	−0.08	−0.99	+0.86	+ 82	1.5	+62	19	19	3.5	3
14	922	.08	1.00	− .58	− 62	1.0	−31	19	19	3	2
15	1002	.05	1.00	+ .22	+ 17	1.0	+ 8	19	7	2.5	3
16	−1025	−0.04	−0.99	+0.45	+ 40	1.7	+34	19	19	4.5	4.5
							+18				
17	−1069	+0.53	+0.83	+0.89	+ 95	0.7	+33	13	13	3	2
18	928	0.56	0.74	−0.52	− 47	1.5	−35	19	19	3.5	3
19	− 979	+0.56	+0.70	−0.01	+ 3	1.3	+ 2	14	14	4	3.5
							0				
20	− 934	+0.89	−0.95	−0.46	− 71	1.6	−57	19	18	4.5	4
21	1007	0.90	0.96	+0.27	+ 1	1.6	+ 1	22	22	3.5	3.5
22	−1018	+0.91	−0.97	+0.38	+ 12	1.2	+ 7	22	22	3	1.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		*	*	*	*	*	*	*	*	*
		s	s							
23	'95, Dec. 4.3	+ 5.40	+ 4.84	—1076	— 5	+ 8	+ 4	0	— 3	+ 65
24	8.2	+ 5.40	+ 5.40	—1098	— 5	+ 9	+ 5	0	— 2	+ 66

6. Star 283 observed without screen; the correction required to reduce to an observation with the screen, —0s.026, is applied to DT. 7. Star 282, f. 10. Through thick haze. Stars 281 and 283, ff. 11. Stars 281 and 282, fff; star 283, ff.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	8.00	8.30	7.75	2
5th	7.90	8.13	7.83	3

Normal Equations.

$+40.91\,x + 1.72\,y - 14.88\,z - 0.44 = 0$

$+ 1.72\,x + 21.65\,y - 5.46\,z + 5.39 = 0$

$-14.88\,x - 5.46\,y + 32.21\,z - 4.41 = 0$

STARS 284, 285, 286.

				—14s						
		s	s							
1	'93, Oct. 16.4	— 0.12	— 0.12	—1141	0	0	— 6	0	— 1	+157
2	Nov. 2	— 5.35	— 5.35	1195	+ 2	— 1	6		1	151
3	4	0.00	0.00	1525	0	0	6		1	150
4	6.3	+ 0.41	+ 0.41	1429	— 1	0	— 6		— 1	149
5	20	— 5.35	— 5.35	1345	+ 2	1	0		0	144
6	Dec. 3	5.10	7.32	1295	2	1	+ 3		0	139
7	10	0.04	0.04	1465	0	0	— 3		0	137
8	19.2	33.07	33.07	1582	10	3	5		0	133
9	21	—10.91	—10.91	—1364	+ 3	— 1	— 3	0	0	+133
10	94 July 20.7	— 9.65	—14.56	—1275	+ 3	— 1	— 5	0	— 4	+ 59
11	21	16.59	23.12	1220	5	2	5		4	58
12	22	— 3.41	4.57	1210	1	0	5		4	58
13	26.6	+ 0.54	9.74	1230	0	1	4		4	56
14	28	—11.37	18.67	1116	3	2	5		4	55
15	29	23.44	25.89	1188	7	3	5		4	55
16	Aug. 1	21.84	27.45	1167	7	3	4		4	54
17	2	5.39	5.39	1187	2	1	5		4	54
18	4	6.01	12.10	1028	2	1	6		4	53
19	6	— 7.57	—13.76	— 982	+ 2	— 1	— 5	0	— 4	+ 52

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
				s							
23	—1007	+0.93	—1.00	+0.27	0	1.5	0	22	20	3.5	3
24	—1025	+0.94	—1.00	+0.45	+ 18	1.9	+17 — 6	22	22	4.5	4.5

14. Star 281, f; star 282, ff. 17. Stars 281 and 282, fff; two threads on each of these rejected.
20. Star 283, image breaking.

Assumed $D\alpha$ 1895.0 $= -7^s.980$ $d.D\alpha = +0^s.007$ $p_z = 25.71$
$x = +0.068$ $d.D\mu = -0.022$ $[pnn.3] = 0.1101$
$y = -0.222$ $[pvv] = 0.1100$
$z = +0.131$ $\pi = +0''.10 \pm 0''.076$ $r = \pm 0^s.024$

LALANDE 46650.

	—14s			s							
1	— 991	—1.21	—0.48	—1.49	—178	0.3	—27	11	11	0	
2	1050	1.16	.72	—0.90	—131	0.4	—26	8	8	0.5	
3	1381	1.15	.74	+2.41	+199	0.6	+60	11	11	3.5	
4	1288	1.15	.75	+1.48	+106	0.6	+32	10	10	3	
5	1200	1.11	.89	+0.60	+ 11	0.5	+ 3	8	8	3	
6	1152	1.08	.97	+0.12	— 41	0.7	—14	16	15	3	
7	1331	1.06	0.99	+1.91	+138	0.8	+55	19	19	3	
8	1447	1.03	1.00	+3.07	+254	0.2	+25	7	7	3	
9	—1232	—1.03	—1.00	+0.92	+ 39	0.7	+14 +14	19	19	5	
10	—1223	—0.45	+0.84	+0.83	+122	0.6	+37	11	13	3	3
11	1168	.44	.83	+ .28	+ 66	0.7	+23	8	11	5	5
12	1160	.44	.82	+ .20	+ 58	0.8	+23	17	14	5	5
13	1183	.43	.78	+ .43	+ 79	0.7	+28	13	13	3	2.5
14	1069	.43	.75	— .71	— 37	0.6	—11	9	12	3.5	3
15	1138	.42	.74	— .02	+ 32	0.4	+ 6	6	7	3	2.5
16	1117	.41	.71	— .23	+ 9	0.5	+ 2	7	10	2.5	2
17	1141	.41	.69	+0.01	+ 32	0.7	+11	16	16	3	2
18	984	.41	.67	—1.56	—126	0.7	—44	14	17	4	3
19	— 938	—0.40	+0.66	—2.02	—171	0.7	—60 + 2	13	16	3	3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	DT	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$D\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s	s	*	*	*	*	*	*	*
20	'94, Dec. 4.3	— 8.97	— 8.97	—1150	+ 3	— 1	— 5	0	— 1	+ 9
21	5	+ 1.57	+ 1.57	1077	0	0	5		1	9
22	13	— 2.28	— 2.28	1089	1	0	5		1	5
23	14	8.53	14.33	1066	3	1	5		1	5
24	17	4.32	8.69	1120	1	1	5		1	4
25	19.2	12.74	18.68	1105	4	2	5		1	3
26	25	— 5.39	— 5.39	—1147	+ 2	— 1	— 5	0	— 2	+ 2
27	95 July 19.7	— 4.86	— 4.86	— 832	+ 1	0	+ 4	0	— 4	— 70
28	21	9.80	9.80	1034	3	— 1	4		4	71
29	22	12.61	19.04	827	4	2	4		4	72
30	24	1.70	7.24	1062	1	1	4		4	72
31	29.6	7.30	12.83	1088	2	1	4		4	74
32	31	1.77	1.77	986	1	0	3		4	75
33	Aug. 1	— 8.47	— 8.47	—1015	+ 3	— 1	+ 4	0	— 4	— 76
34	95 Nov. 20.3	— 7.40	— 7.40	— 888	+ 2	— 1	+ 5	0	— 2	—115
35	23	1.35	+ 0.11	1153	0	0	6		2	117
36	26	1.02	— 1.02	1142	0	0	6		2	118
37	Dec. 4	0.12	0.12	1109	0	0	6		2	120
38	5	7.40	12.93	1059	2	1	6		2	121
39	8	0.12	0.12	1098	0	0	7		2	122
40	12	— 5.42	—10.97	1121	+ 2	— 1	6		2	123
41	15	+ 3.64	+ 3.64	1070	— 1	0	6		2	124
42	23.2	— 0.12	— 0.12	1075	0	0	6		2	127
43	26	+ 3.64	+ 3.64	—1068	— 1	0	+ 5	0	— 2	—128
44	96 July 16.7	— 0.48	— 6.49	—1018	0	— 1	+ 7	0	— 5	—200

2, 4, 5, 6. Star 285, fff. 2. Star 286, ff, image breaking badly. 8. Stars 284 and 285, fff. 10, 11. Star 285, ff. 13, 14, 15, 16, 18, 19. Star 285, fff. 13, 19. Clouds. 13. Star 285, one thread rejected. 22. Star 285, ff. 20, 21, 23, 24, 25, 26. Star 285, fff. 28. Star 285, fff. 29. Clouds. Star 285, fff. Est'd mags.: 8.5, 9 0, 7.5. 33. Stars 284 and 285, fff. Est'd mags.: 8.7, 9.3, 7.7. Sky thick in places. 35. Images breaking badly. 36. Star 285, fff.

Epoch.	Estimated Magnitudes.			No. of Ests.
4th	8.18	8.65	7.30	4
5th	7.99	8.59	7.22	8
6th	7.6	8.5	6.5	1

Normal Equations.

$$+21.15\,x + 4.12\,y - 5.93\,z + 2.36 = 0$$
$$+ 4.12\,x + 13.02\,y - 1.87\,z + 0.06 = 0$$
$$- 5.93\,x - 1.87\,y + 16.87\,z - 7.95 = 0$$

TABLE VII (Continued).

No.	$D\alpha$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
20	—1145	—0.07	—0.97	+0.05	— 41	0.7	—14	14	14	3.5	3
21	1074	.07	0.98	— .66	—112	0.8	—44	18	18	5	5
22	1089	.05	1.00	— .51	— 98	0.7	—34	16	16	3.5	3.5
23	1065	.04	1.00	— .75	—122	0.5	—30	9	11	3	1.5
24	1122	.04	1.00	— .18	— 65	0.8	—26	15	17	4.5	4.5
25	1106	.03	1.00	— .34	— 81	0.6	—24	11	14	2.5	2.5
26	—1151	—0.01	—0.99	+0.11	— 36	0.8	—14	15	15	4	4
							—27				
27	— 901	+0.55	+0.85	—2.39	—194	0.7	—68	15	15	3.5	3.5
28	1103	.56	.83	—0.37	+ 7	0.5	+ 2	12	12	3.5	2
29	897	.56	.82	—2.43	—199	0.6	—60	10	13	3.5	3
30	1134	.56	.80	—0.06	+ 37	0.8	+15	18	21	4	3
31	1161	.58	.74	+ .21	+ 62	0.7	+22	15	18	4	3
32	1061	.58	.73	— .79	— 39	0.8	—16	16	16	5	4
33	—1089	+0.59	+0.72	—0.51	— 11	0.6	— 3	11	11	5	5
							—15				
34	— 999	+0.89	—0.88	—1.41	—178	0.7	—62	15	15	2.5	2.5
35	1266	.90	.91	+1.26	+ 88	0.6	+26	15	17	2.5	1
36	1256	.91	.93	+1.16	+ 78	0.7	+27	18	18	3	1
37	1225	.93	.97	+0.85	+ 45	0.8	+18	19	19	4	4
38	1175	.93	.98	+ .35	— 5	0.8	— 2	15	18	5	5
39	1215	.94	0.99	+ .75	+ 34	0.9	+15	19	19	5	5
40	1239	.95	1.00	+ .99	+ 58	0.8	+23	16	19	4.5	3
41	1191	.96	1.00	+ .51	+ 10	0.9	+ 4	21	21	4	3
42	1198	.98	1.00	+ .58	+ 17	0.9	+ 8	19	19	5	4.5
43	—1194	+0.99	—0.99	+0.54	+ 13	0.9	+ 6	21	21	4.5	4.5
							+ 6				
44	—1217	+1.54	+0.87	+0.77	+129	0.9	+58	17	20	4.5	4

Assumed $D\alpha$ 1895.0 = —15.^{s}140 $d.D\alpha$ = +0.^{s}001 p_z = 15.17

x = + 0.011 $d.D\mu$ = +0.006 $[pnn\ 3]$ = 0.1755

y = + 0.061 $[pvv]$ = 0.1740

z = + 0.482 π = +0″.39 ±0″.092 r = ±0s.022

All the values of $\sqrt{p}$ were taken for the case A_2—middle star extremely faint.

The residuals of observations 20—26 appeared of so systematic a character, it was deemed advisable to make another solution, omitting these observations. The results were as follows:—

$d.D\alpha$ = —0s.013, $d.D\mu$ = +0s.015, π = +0″.54 ± 0″.099, r = ±0s.022; 37 obs.

TABLE VII (Continued).

STARS 287, 288.

No.	Date.	c_1'	c_2'	T_2-T_1	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta \tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
		s		+ 164s						
1	'93, Nov. 2.4	0.00		+ 845	0		− 4	+1	− 1	+ 72
2	4	.00		819	0		4	1	4	72
3	6	.00		822	0		− 4	1	5	71
4	20.3	+ 0.21		832	0		0	1	8	70
5	29	−22.35		759	+34		+ 2	1	9	67
6	Dec. 3	+ 0.32		820	0		+ 2	1	11	67
7	10.2	− 6.95		826	+10		− 2	1	12	66
8	17	+ 7.23		783	−10		2	1	11	64
9	19	− 0.06		871	0		3	1	11	64
10	21	− 0.06		861	0		2	1	12	64
11	30	+ 2.15		+ 873	− 3		− 3	+1	−11	+ 62
12	94 July 20.7	− 1.55		+ 810	+ 2		− 3	+1	+18	+ 28
13	21	0.09		846	0		3	1	18	28
14	22	0.09		808	0		3	+1	17	28
15	26	0.09		792	0		3	0	16	27
16	28.6	9.09		833	+13		3	0	16	26
17	29	0.09		807	0		3	0	15	26
18	Aug. 1	0.09		780	0		3	0	15	26
19	2	14.62		845	+22		3	0	15	25
20	4	5.61		842	8		4	0	14	25
21	6	19.48		792	29		4	0	14	25
22	9	5.61		790	+ 8		3	0	14	24
23	11	− 0.09		+ 824	0		− 4	0	+14	+ 24
24	94 Dec. 2.3	− 0.09		+ 938	0		− 4	+3	−18	+ 5
25	4	.01		892	0		4	3	19	5
26	5	.01		916	0		4	3	18	4
27	13	− 0.01		+ 878	0		− 3	+2	−19	+ 2

TABLE VII (Continued).

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No.	$\alpha_2-\alpha_1$ 1895.0 *	r	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.
	+ 164^s			^{s}						
1	+ 913	—1.16	—0.67	—0.63	— 24	1.0	—12	11		3
2	884	1.15	.69	— .34	+ 5	1.0	+ 2	11		3.5
3	885	1.15	.72	— .35	+ 5	1.0	+ 3	11		3.5
4	895	1.11	.87	— .45	— 2	1.0	— 1	10		3.5
5	854	1.09	.93	— .04	+ 39	0.8	+16	10		1.5
6	879	1.08	.96	— .29	+ 14	1.0	+ 7	22		0.5
7	889	1.06	0.98	— .39	+ 4	0.9	+ 2	14		2
8	825	1.04	1.00	+ .25	+ 70	1.1	+38	15		3
9	922	1.03	1.00	— .72	— 28	1.1	—16	25		1.5
10	912	1.03	1.00	— .62	— 18	1.6	—14	25		5
11	+ 919	—1.00	—0.98	—0.69	— 26	0.6	— 8 + 2	11		0
12	+ 856	—0.45	+0.87	—0.06	+ 2	1.0	+ 1	18	3	3
13	890	.44	.87	— .40	— 33	2.0	—33	25	5	5
14	851	.44	.86	— .01	+ 5	2.0	+ 5	25	5	5
15	832	.43	.82	+ .18	+ 24	1.2	+14	19	3	2.5
16	885	.43	.80	— .35	— 27	1.5	—20	20	3.5	3
17	845	.42	.79	+ .05	+ 12	1.6	+10	25	3	3
18	818	.41	.75	+ .32	+ 40	1.6	+32	25	3	3
19	904	.41	.74	— .54	— 46	1.1	—25	12	3	2
20	885	.41	.72	— .35	— 26	1.5	—20	22	4	3
21	856	.40	.71	— .06	+ 2	1.2	+ 1	14	3	3
22	833	.39	.67	+ .17	+ 26	1.4	+18	22	2.5	2.5
23	+ 858	—0.39	+0.64	—0.08	+ 3	2.0	+ 3 — 1	25	5	5
24	+ 924	—0.08	—0.95	—0.74	— 38	1.3	—24	19	2	2
25	877	.07	.96	— .27	+ 9	1.6	+ 7	25	3.5	3
26	901	.07	.97	— .51	— 16	2.0	—16	25	4.5	5
27	+ 860	—0.05	—0.99	—0.10	+ 27	1.5	+20	25	3	3.5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	T_2-T_1	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta \tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s		*	*	*	*	*	*	*
28	'94, Dec. 14.3	— 0.01		+ 889	0		— 3	+2	—19	+ 2
29	17	.01		903	0		4	3	20	2
30	19.2	.01		888	0		4	2	21	+ 2
31	25	0.01		943	0		4	3	19	0
32	31	5.53		890	+ 8		4	3	20	0
33	95 Jan. 1	0.01		889	0		4	3	20	0
34	2	— 0.01		+ 918	0		— 4	+3	—19	— 1
35	95 July 19.7	+ 5.50		+ 849	— 9		+ 2	+1	+ 9	—34
36	21	— 0.02		913	0		3	1	10	35
37	22	.02		881	0		3	1	9	35
38	24	.02		885	0		3	1	8	35
39	29.6	0.02		873	0		3	1	7	36
40	30	14.32		792	+23		3	1	7	36
41	31	1.28		820	+ 2		3	1	7	36
42	Aug. 1	0.02		883	0		3	1	6	36
43	3	— 0.02		+ 904	0		+ 3	+1	+ 6	—37
44	95 Nov. 20.3	— 0.12		+ 964	0		+ 3	+5	—26	—55
45	23	.02		933	0		3	5	27	55
46	26	.12		952	0		3	5	27	56
47	29	.12		954	0		3	5	28	56
48	Dec. 4	.12		959	0		4	5	30	57
49	5	.12		942	0		4	5	29	58
50	8	.12		973	0		4	5	30	58
51	12	5.64		926	+ 9		4	5	30	59
52	15	0.12		933	0		4	5	29	60
53	23.2	— 0.12		+ 999	0		+ 4	+5	—29	—61

TABLE VII (Continued).

No.	$\alpha_2-\alpha_1$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1 m_2	Images.	
28	+ 871	—0.04	—0.99	—0.21	+ 15	1.2	+ 9	25	3	2
29	884	.04	1.00	— .34	+ 2	1.9	+ 2	25	4.5	4.5
30	867	.03	1.00	— .17	+ 19	1.4	+13	25	2.5	2.5
31	923	— .01	1.00	— .73	— 36	1.5	—27	25	3.5	2.5
32	877	.00	0.98	— .27	+ 8	1.8	+ 7	22	4.5	4.5
33	868	+ .01	0.98	— .18	+ 17	1.9	+16	25	4.5	4.5
34	+ 897	+0.01	—0.97	—0.47	— 11	2.0	—11	25	5	5
							0			
35	+ 818	+0.55	+0.88	+0.32	+ 30	1.5	+22	22	3	3
36	892	.55	.86	— .42	— 43	1.6	—34	25	3.5	3.5
37	859	.56	.85	— .09	— 10	1.6	— 8	25	3.5	3
38	862	.56	.84	— .12	— 12	1.6	—10	25	4	3
39	848	.58	.79	+ .02	+ 2	1.6	+ 2	25	4	3
40	790	.58	.78	+ .60	+ 59	1.4	+41	17	3	3
41	797	.58	.77	+ .53	+ 52	1.8	+47	24	5	4
42	857	.58	.75	— .07	— 6	2.0	— 6	25	5	5
43	+ 877	+0.59	+0.73	—0.27	— 27	2.0	—27	25	5	5
							+ 3			
44	+ 891	+0.89	—0.87	—0.41	— 15	1.6	—12	25	3	2
45	859	.90	.89	— .09	+ 18	1.3	+12	22	2	1
46	877	.91	.91	— .27	0	1.4	0	25	2.5	1
47	878	.91	.93	— .28	0	1.9	0	25	4.5	4.5
48	881	.93	.96	— .31	— 3	1.3	— 2	25	2.5	1.5
49	864	.93	.97	— .14	+ 14	2.0	+14	25	5	5
50	894	.94	.98	— .44	— 16	2.0	—16	25	5	5
51	855	.94	0.99	— .05	+ 25	1.5	+18	22	4	2.5
52	853	.95	1.00	— .03	+ 25	1.6	+20	25	4	3
53	+ 918	+0.98	—1.00	—0.68	— 40	2.0	—40	25	5	5

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	T_2-T_1	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta \tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
		s		*	*	*	*	*	*	*
54	'95, Dec. 26.2	− 0.12		+ 955	0		+ 4	+5	−30	− 61
55	27	− 5.64		+ 946	+ 9		+ 4	+5	−29	− 62
				56. Rejected Observation.						
56	94 Dec. 29.2	+15.66		+ 953	−23		− 4	+3	−20	0

5, 7, 9. Images breaking badly. 10. Through clouds. 12. Star 287, ff. 15. Clouds. 21. Clouds. 28. Star 287, f. 45. Images breaking frequently. 50. Star 288 appears elongated at 90°. 53. *Comes* seen separate at 90°. 56. Extremely poor observation. Reject. Observation of star 289 abandoned.

Epoch.	Estimated Magnitudes.			No. of Ests.
5th	7.87	5.95	6.22	6

Normal Equations.

$$+130.94\,x + 21.26\,y - 30.93\,z - 27.71 = 0$$
$$+ 21.26\,x + 57.51\,y - 16.31\,z - 2.24 = 0$$
$$- 30.93\,x - 16.31\,y + 104.57\,z + 22.85 = 0$$

STARS 288, 289.

			s	− 170s						
1	'93, Nov. 2.4		0.00	− 696		0	+12	−1	+ 3	+72
2	4		.00	719		0	12	1	3	72
3	6		.00	645		0	12	1	4	71
4	9		0.00	721		0	+12	1	5	70
5	29		+ 1.42	734		+ 6	− 6	1	10	67
6	Dec. 3.3		+ 1.72	710		+ 8	− 6	1	11	67
7	10		− 7.33	667		−32	+ 6	1	13	66
8	17.2		+12.76	768		+56	7	1	13	64
9	19		12.78	765		56	9	1	14	64
10	21		12.78	736		56	5	1	14	64
11	30		+ 7.36	− 802		+32	+ 8	−1	+15	+62
12	94 July 11.7		− 1.72	− 658		− 8	+ 6	−1	−16	+30
13	13		+12.75	672		+56	9	1	16	29
14	14		7.22	766		32	9	1	16	29
15	20		+ 5.43	− 648		+24	+ 8	−1	−16	+28

TABLE VII (Continued).

No.	$\alpha_2-\alpha_1$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1 m_2	Images.
				s					
54	+ 873	+0.99	−0.99	−0.23	+ 5	1.9	+ 5	25	4.5 4.5
55	+ 873	+0.99	−0.99	−0.23	+ 6	1.5	+ 4	22	3.5 3
							0		
				56. Rejected Observation.					
56	+ 909	0.00	−0.99	−0.59	− 23			15	2 0

Assumed $\Delta\alpha$ 1895.0 $= +164^s.850$ $\quad d.\Delta\alpha = +0^s.018$ $\quad p_z = 94.91$

$x = +\ 0.183$ $\quad d.\Delta\mu = -0.008$ $\quad [pmn.3] = 0.0763$

$y = -\ 0.079$ $\quad [pvv] = 0.0752$

$z = -\ 0.177$ $\quad \pi = -0''.26 \pm 0''.038$ $\quad r = \pm 0^s.013$

Omitting observation 4, the only one in which stars 287 and 288 were observed without star 289:—
$d.\Delta\alpha = +0^s.018$, $d.\Delta\mu = -0^s.008$, $\pi = -0''.26 \pm 0''.039$, $r = \pm 0^s.013$; 54 obs.

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	− 170s			s					
1	− 610	−1.16	−0.67	−0.30	− 13	1.1	− 7	11	3
2	633	1.15	.69	− .07	+ 10	1.1	+ 6	11	3.5
3	559	1.15	.72	− .81	− 64	1.1	−35	11	3.5
4	635	1.14	.75	− .05	+ 11	1.3	+ 7	11	5
5	658	1.09	.93	+ .18	+ 34	0.8	+14	10	1.5
6	631	1.08	.96	− .09	+ 7	1.0	+ 4	23	0.5
7	615	1.06	0.98	− .25	− 9	1.1	− 5	15	2
8	629	1.04	1.00	− .11	+ 4	1.4	+ 3	18	3
9	623	1.03	1.00	− .17	− 2	1.2	− 1	18	1.5
10	598	1.03	1.00	− .42	− 27	1.7	−23	18	5
11	− 686	−1.00	−0.98	+0.46	+ 61	0.6	+18	9	0+
							− 2		
12	− 647	−0.47	+0.93	+0.07	+ 12	1.4	+ 8	18	4 2.5
13	595	.47	.93	− .45	− 40	1.5	−30	18	3 3
14	713	.46	.92	+ .73	+ 78	1.3	+50	15	4 3
15	− 605	−0.45	+0.87	−0.35	− 31	1.5	−23	21	3 3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	T_2-T_3	$\Delta_1 C.c_1'$	$\Delta_2 C.c_2'$	$\Delta\tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
				*	*	*	*	*	*	*
			s							
16	'94, July 21.7		+ 5.43	— 691		+24	+10	—1	—16	+28
17	22		12.75	710		56	9	1	15	28
18	26		+ 3.68	693		+16	7	1	15	27
19	28.6		— 9.09	620		—40	8	1	15	26
20	29		+12.75	748		+56	9	1	15	26
21	Aug. 1		12.75	726		56	8	1	14	26
22	2		5.27	635		23	10	1	14	25
23	4		12.75	758		56	12	1	14	25
24	6		12.75	693		56	10	1	14	25
25	9		7.22	621		32	10	1	13	24
26	11		+12.75	— 684		+56	+10	—1	—13	+24
27	94 Dec. 2.3		+12.75	— 773		+56	+12	—2	+20	+ 5
28	4		12.83	743		56	11	3	20	5
29	5		12.83	708		57	11	2	20	4
30	13		12.83	733		56	10	2	22	2
31	14		12.83	744		57	10	3	22	2
32	17		12 83	720		56	10	2	22	2
33	19.2		12.83	732		57	10	3	23	+ 2
34	25		12.83	703		56	11	2	23	0
35	31		12.83	726		57	11	3	24	0
36	95 Jan. 1		12.83	786		56	11	2	24	0
37	2		+ 5.51	— 706		+24	+11	—2	+24	— 1
38	95 July 12.7		+ 4.93	— 664		+22	— 7	—1	— 8	—33
39	19		12.82	671		56	8	1	7	34
40	21		12.82	622		57	8	1	7	35
41	22		12.82	658		56	8	1	7	35
42	24		12.82	661		57	8	1	7	35
43	29.6		+12.82	— 651		+56	— 8	—1	— 6	—36

TABLE VII (Continued).

No.	$\alpha_2-\alpha_3$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1 m_2	Images.
				s					
16	— 646	—0.44	+0.87	+0.06	+ 10	1.9	+10	22	5 5
17	633	.44	.86	— .07	— 3	1.7	— 2	18	5 5
18	659	.43	.82	+ .19	+ 23	1.5	+17	21	3 2.5
19	642	.43	.80	+ .02	+ 5	1.5	+ 4	20	3.5 3
20	673	.42	.79	+ .33	+ 37	1.5	+28	18	3 3
21	651	.41	.75	+ .11	+ 15	1.5	+11	18	3 3
22	592	.41	.74	— .48	+ 44	1.3	+28	20	3 2
23	680	.41	.72	+ .40	+ 43	1.5	+32	18	4 3
24	617	.40	.71	— .23	— 19	1.5	—14	18	3 3
25	569	.39	.67	— .71	— 67	1.3	—44	15	2.5 2.5
26	— 608	—0.39	+0.64	—0.32	— 28	1.7	—24	18	5 5
							+ 3		
27	— 682	—0.08	—0.95	+0.42	+ 43	1.2	+26	18	2 2
28	654	.07	.96	+ .14	+ 15	1.5	+11	18	3.5 3
29	618	.07	.97	— .22	— 21	1.7	—18	18	4.5 5
30	645	.05	.99	+ .05	+ 5	1.5	+ 4	18	3 3
31	656	.04	0.99	+ .16	+ 17	1.3	+11	18	3 2
32	632	.04	1.00	— .08	— 7	1.6	— 6	18	4.5 4.5
33	643	.03	1.00	+ .03	+ 3	1.3	+ 2	18	2.5 2.5
34	615	— .01	1.00	— .25	— 26	1.3	—17	18	3.5 2.5
35	637	.00	0.98	— .03	— 3	1.7	— 2	18	4.5 4.5
36	697	+ .01	0.98	+ .57	+ 57	1.7	+48	18	4.5 4.5
37	— 650	+0.01	—0.97	+0.10	+ 10	1.9	+10	22	5 5
							+ 6		
38	— 691	+0.53	+0.93	+0.51	+ 40	1.4	+28	16	3 3
39	665	.55	.88	+ .25	+ 15	1.5	+11	18	3 3
40	616	.55	.86	— .24	— 34	1.5	—26	18	3.5 3.5
41	653	.56	.86	+ .13	+ 3	1.5	+ 2	18	3.5 3
42	655	.56	.84	+ .15	+ 4	1.4	+ 3	18	4 3
43	— 646	+0.58	+0.79	+0.06	— 5	1.4	— 4	18	4 3

TABLE VII (Continued).

No.	Date.	c_1'	c_2'	T_2-T_3	$\Delta_1 C.c_1'$	$\Delta_2 C.c_3'$	$\Delta \tan\delta.n$	Rate.	Precess. and Nutat.	Prop. Mot.
			s	*	*	*	*	*	*	*
44	'95, July 30.6		+12.82	— 628		+57	— 7	—1	— 6	—36
45	31		12.82	652		56	6	1	6	36
46	Aug. 1		12.82	663		57	8	1	6	36
47	3		+12.82	— 655		+56	— 8	—1	— 6	—37
48	95 Nov. 20.3		+12.72	— 672		+56	— 9	—4	+25	—55
49	23		13.35	680		59	12	4	26	55
50	26		12.72	677		56	12	5	27	56
51	29		12.72	664		56	12	4	27	56
52	Dec. 4		12.72	644		56	13	5	29	57
53	5		7.19	640		32	13	4	29	58
54	8		5.55	635		24	13	5	30	58
55	12		12.72	682		56	13	4	30	59
56	15		12.72	660		56	13	5	31	60
57	23.2		12.72	640		56	12	4	32	61
58	26		12.72	652		56	11	5	32	61
59	27		+12.72	— 657		+56	—11	—4	+32	—62

4. Sky thick. 5, 7, 9. Images greatly agitated. 10. Through clouds. 12, 13, 14. Daylight illumination. 18, 24. Clouds. 49. Images breaking frequently.

For estimated magnitudes see next preceding solution.

Normal Equations.

$$+122.63\,x + 4.71\,y - 15.79\,z + 2.20 = 0$$
$$+ 4.71\,x + 53.12\,y - 8.87\,z + 7.86 = 0$$
$$- 15.79\,x - 8.87\,y + 97.50\,z - 0.56 = 0$$

TABLE VII (Continued).

No.	$\alpha_2-\alpha_3$ 1895.0 *	τ	Sin$(L-M)$	$10n_1'$ s	v_1' *	$\sqrt{p}$	$\frac{1}{2}\sqrt{p}v_1'$ *	m_1	m_2	Images.	
44	— 621	+0.58	+0.78	—0.19	— 30	1.4	—21	18		3	3
45	645	.58	.78	+ .05	— 6	1.6	— 5	18		5	4
46	657	.58	.77	+ .17	+ 5	1.7	+ 4	18		5	5
47	— 651	+0.59	+0.74	+0.11	0	1.7	0	18		5	5
							— 1				
48	— 659	+0.89	—0.86	+0.19	+ 6	1.3	+ 4	18		3	2
49	666	.90	.88	+ .26	+ 12	1.1	+ 6	17		2	1
50	667	.91	.91	+ .27	+ 13	1.1	+ 7	18		2.5	1
51	653	.91	.93	+ .13	— 1	1.7	— 1	18		4.5	4.5
52	634	.93	.96	— .06	— 21	1.1	—12	18		2.5	1.5
53	654	.93	.97	+ .14	— 1	1.5	— 1	15		5	5
54	657	.94	.98	+ .17	+ 2	1.5	+ 2	14		5	5
55	672	.95	0.99	+ .32	+ 17	1.4	+12	18		4	2.5
56	651	.95	1.00	+ .11	— 3	1.5	— 2	18		4	3
57	629	.98	1.00	— .11	— 26	1.7	—22	18		5	4.5
58	641	.99	0.99	+ .01	— 15	1.6	—12	18		4.5	4
59	— 646	+0.99	—0.99	+0.06	— 9	1.5	— 7	18		3.5	3
							— 2				

Assumed $\Delta\alpha$ 1895.0 $= -170^s.640$ $\quad d.\Delta\alpha = -0^s.001$ $\quad p_z = 94.18$

$x = -0.013$ $\quad d.\Delta\mu = -0.015$ $\quad [pnn.3] = 0.0780$

$y = -0.149$ $\quad [pvv] = 0.0748$

$z = -0.010$ $\quad \pi = -0''.01 \pm 0''.038$ $\quad r = \pm 0^s.013$

Omitting the observations of the dates on which star 287 was not observed, namely, 4, 12, 13, 14, and 38:—

$d.\Delta\alpha = 0^s.000$, $d.\Delta\mu = -0^s.015$, $\pi = +0''.01 \pm 0''.037$, $r_1 = \pm 0''.14$; 54 obs.

GENERAL NOTES TO TABLE VII.

During a considerable part of the time the chronograph could not be made to run regularly. This trouble was noted especially in November and December, 1893, and September, 1894. Some observations were lost on account of the failure of the chronograph to continue running, and on some dates the slower motion, for which the length of a second of time on the sheet is only one-half as large, was substituted for the usual motion.

1893, Dec. 30.2. Beginning with this date the telescope was left unclamped during the transits of the stars.

1894, Feb. 20.6. On this date the clamp arm was detached from the pier, and throughout the remainder of the observations the telescope rested on the friction rollers and pivots alone.

The probable error of a single observation equation was determined from identically the same stars, eight in number, for the periods immediately preceding and following this change in the method of observing. The computation was made from the absolute terms, 77 in number for the preceding and 61 for the following. The results were $\pm 0^s.034$ and $\pm 0^s.028$ respectively.

1894, July 13.3. Observations were begun on miscellaneous stars with the screens as a control upon the personal equation.

A number of observations were made in the twilight, although in general the threads would be a little out of focus owing to the change in the character of the illumination. Special note of this circumstance was made May 18.7, 1895.

The estimated magnitudes given for each group of stars do not include estimates made under abnormal conditions. Consequently, the systematic corrections e, of Table IX should not be affected sensibly by the corrections applied to DT of Table VII, on account of apparent magnitude, in a few cases, as described in the notes.

PLATE I.

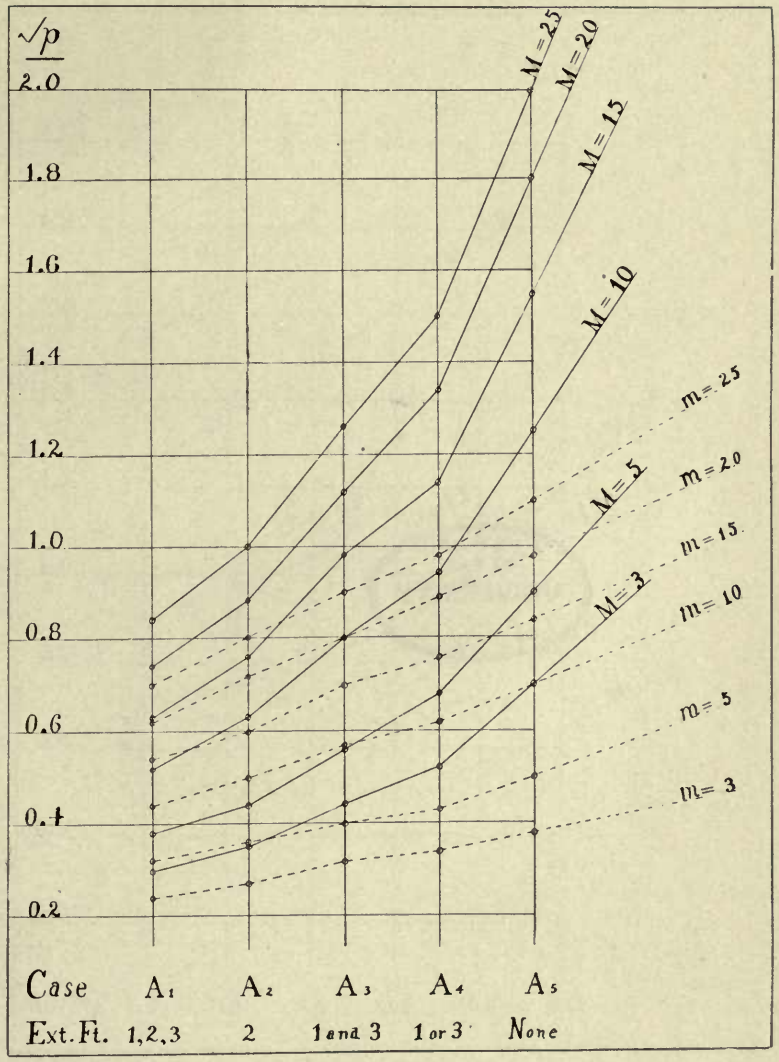

DIAGRAM A.

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PLATE II.

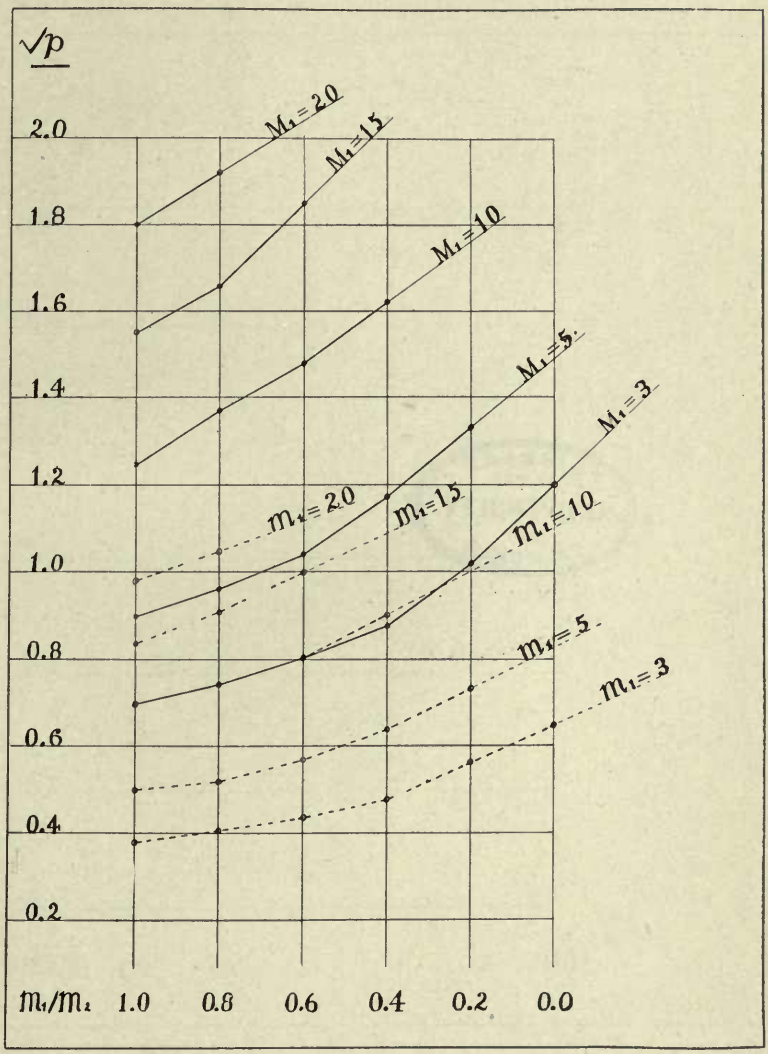

DIAGRAM $B_{1,5}$.

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PLATE II.

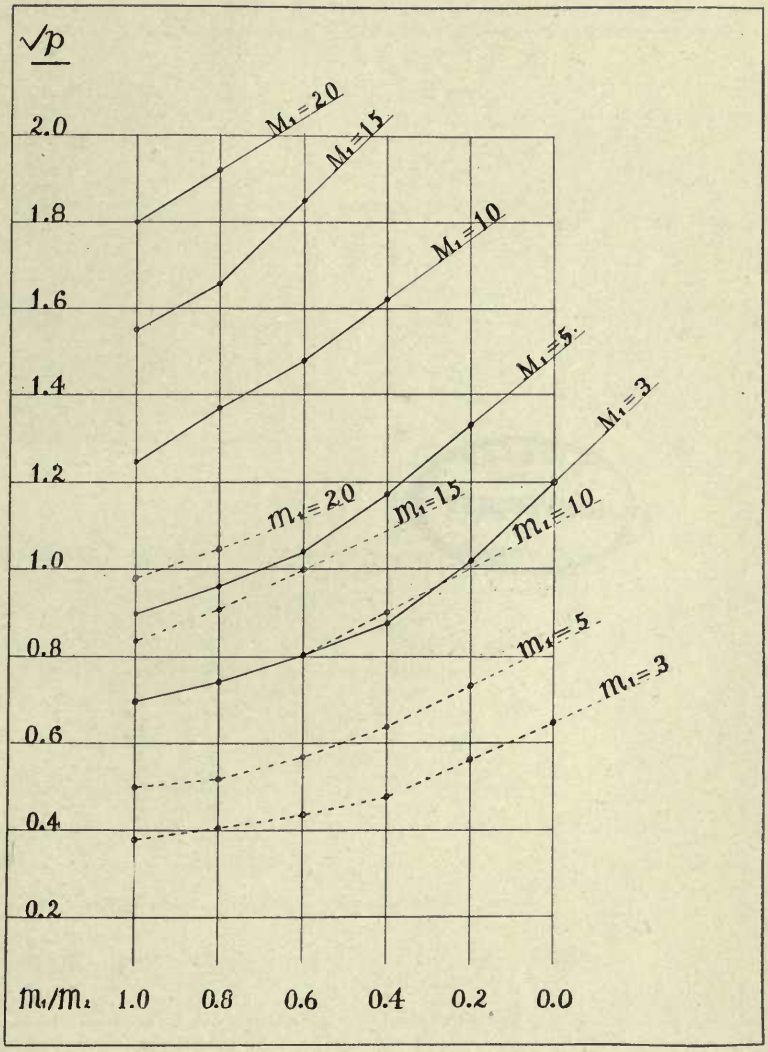

DIAGRAM $B_{1,5}$.

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PLATE III.

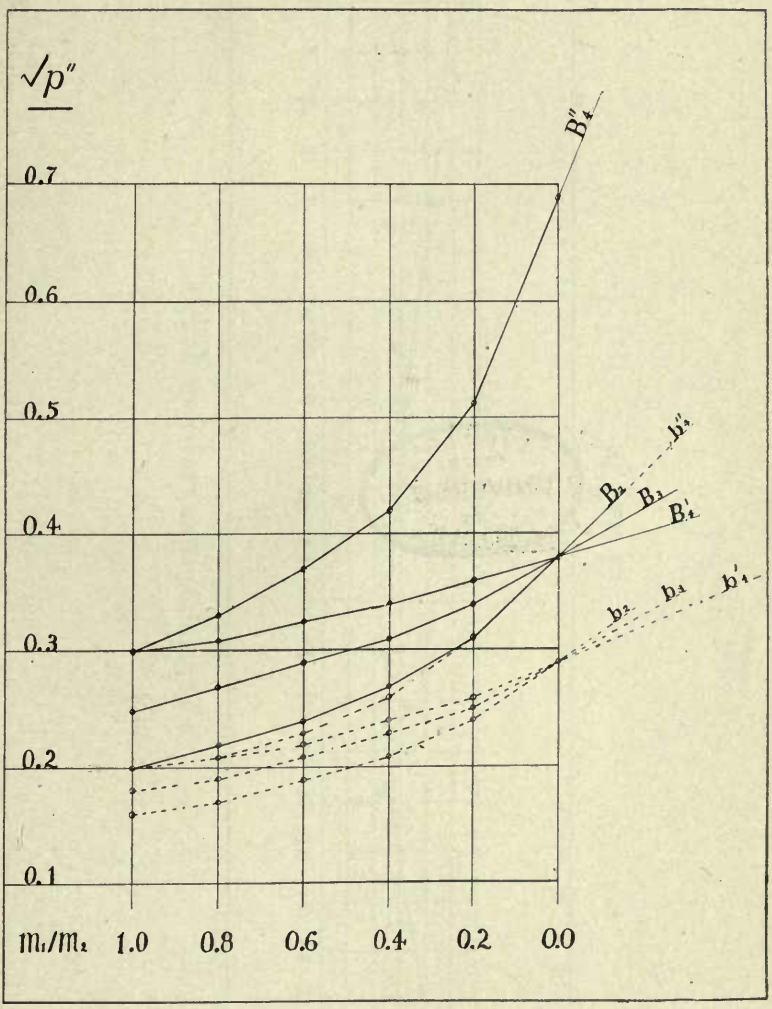

DIAGRAM B_{2-4}.

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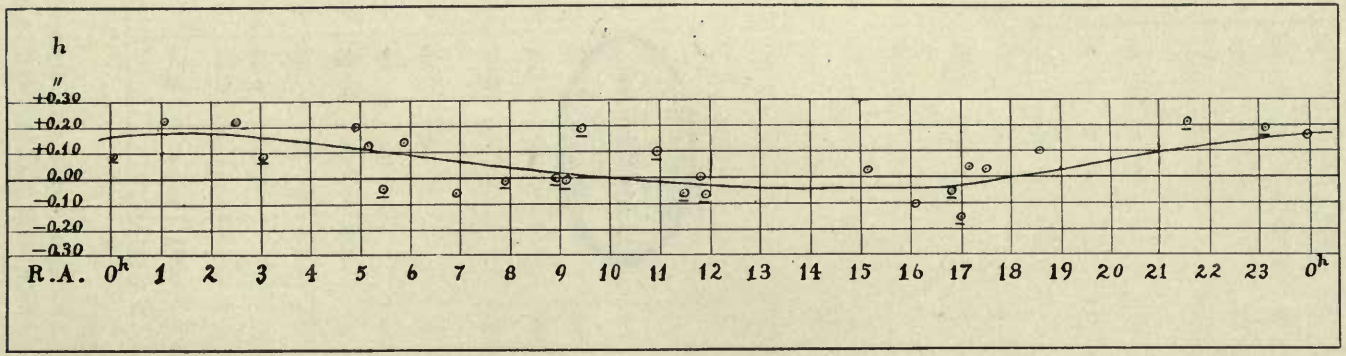
PLATE IV.



CURVE OF SYSTEMATIC CORRECTION.

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TABLE VIII. DATA OF THE CURVE FOR SYSTEMATIC PERSONAL CORRECTION TO THE PARALLAXES AND COMPARISON WITH THE RESULTS OF INDEPENDENT OBSERVATIONS WITH THE SCREENS.

No of Parallax Star.	Δm	π_1	$r(\pi_1)$	π_2	$r(\pi_2)$	$\pi_2-\pi_1$	h	y	v	$\Delta_1\pi$	$y-\Delta_1\pi$
		″	″	″	″	″	″	″	″	″	″
2	—1.0	+0.49	±0.041	+0.40		—0.09	+0.09	+0.17	+0.08	+0.12	+0.05
18	+1.0	.00		+ .23	±0.032	+ .23	+ .23	+ .18	— .05	+ .12	+ .06
37	+1.7	— .24	.067	+ .15	.050	+ .39	+ .23	+ .17	— .06	+ .09	+ .08
40	—0.8	+ .04	.041	— .03		— .07	+ .09	+ .16	+ .07	+ .08	+ .08
62	+0.9	+ .06	.061	+ .24		+ .18	+ .20	+ .11	— .09	+ .08	+ .03
65	+1.0	0.00	±0.038	+0.13		+0.13	+0.13	+0.10	—0.03	+0.06	+0.04
68	—0.9	+ .22	.045	+ .26		+ .04	— .04	+ .10	+ .14	+ .06	+ .04
71	+1.2	— .10	.045	+ .07		+ .17	+ .14	+ .09	— .05	+ .05	+ .04
80	+1.1	+ .02	.036	— .04	±0.032	— .06	— .05	+ .05	+ .10	+ .05	.00
91	—0.7	+ .06	.039	+ .07		+ .01	— .01	+ .04	+ .05	+ .05	— .01
109	—1.4	—0.09	±0.062	—0.10		—0.01	0.00	+0.03	+0.03	+0.06	—0.03
112	—0.8	+ .12	.034	+ .13		+ .01	— .01	+ .03	+ .04	+ .06	— .03
115	—0.7	+ .16	.033	+ .03		— .13	+ .19	+ .02	— .17	+ .06	— .04
127	—1.8	+ .46	.052	+ .28	±0.092	— .18	+ .10	— .02	— .12	+ .06	— .08
139	—2.5	+ .10	.056	+ .24	.060	+ .14	— .06	— .03	+ .03	+ .06	— .09
142	+1.5	+0.03	±0.071	+0.03	±0.053	0.00	0.00	—0.03	—0.03	+0.05	—0.08
145	—1.5	— .01	.069	+ .08		+ .09	— .06	— .03	+ .03	+ .04	— .07
177	+1.8	+ .07	.037	+ .13	.041	+ .06	+ .03	— .06	— 09	+ .03	— .09
192	+1.6	+ .15	.058	.00	.056	— .15	— .10	— .06	+ .04	+ .02	— .08
201	—1.3	.00	.042	+ .06		+ .06	— .05	— .04	+ .01	+ .03	— .07
204	—1.0	+0.03	±0.044	+0.18		+0.15	—0.15	—0.04	+0 11	+0.03	—0.07
207	+1.4	+ .33	.059	+ .39		+ .06	+ .04	— .03	— .07	+ .03	— .06
217	+1.6	— .01	.027	+ .04	±0.040	+ .05	+ .03	— .02	— .05	+ .04	— .06
228	+2.0	— .02	.054	+ .19	.040	+ .21	+ .10	+ .01	— .09	+ .05	— .04
270	—1.5	+ .10	.074	— .21	.078	— .31	+ .21	+ .10	— .11	+ .09	+ .01
279	—0.8	+0.17	±0.037	+0.02		—0.15	+0.19	+0.15	—0.04	+0.12	+0.03
288	+1.7	—0.26	±0.039	+0.01	±0.037	+0.27	+0.16	+0.17	+0.01	+0.12	+0.05

TABLE IX. RESULTS OF THE OBSERVATIONS FOR PARALLAX.

Ref. No.	Designation of Star.	No. of Obs.	$\frac{1}{2}d.D\mu$	π	r_π	e	π'	r_1
			s	"	"	"	"	"
2	β Cassiopeiae	56	+0.008	+0.17	±0.029	—0.07	+0.10	±0.10
5	Groombridge 34	53	+ .012	+ .44	.034	— .13	+ .31	.15
8	Piazzi o, 130	44	+ .023	— .01	.050	+ .36	+ .35	.16
11	η Cassiopeiae	32	+ .001	— .02	.044	+ .36	+ .34	.14
14[1]	Mayer 20	12	+ .055	+ .18	.098	— .02	+ .16	.19
14[2]	Mayer 20	22	+0.007	+0.30	±0.079	—0.18	+0.12	±0.21
18	μ Cassiopeiae	57	— .014	+ .12	.026	— .05	+ .07	.12
21	Σ Ceti	20:	— .008	— .08	.056	+ .17	+ .09	.15
24	ω Andromedae	17	+ .016	+ .18	.042	— .10	+ .08	.10
27	τ Ceti	35	+ .016	+ .18	.062	+ .29	+ .47	.18
30	α Arietis	21:	+0.023	0.00	±0.065	+0.08	+0.08	±0.14
33[1]	δ Trianguli	34:	+ .010	— .03	.055	+ .03	.00	.17
33[2]	δ Trianguli	21:	+ .026	+ .20	.067	.00	+ .20	.17
37	Piazzi ii, 123	34	+ .014	— .05	.043	+ .16	+ .11	.15
40	ι Persei	39	+ .007	.00	.033	+ .10	+ .10	.12
43	Lalande 6888-9, *prec.*	43	—0.009	—0.04	±0.040	—0.10	—0.14	±0.13
46	Lalande 7443	38	+ .003	+ .21	.055	— .23	— .02	.17
50[1]	o^2 40 Eridani	49	— .007	+ .34	.042	— .13	+ .21	.15
50[2]	o^2 40 Eridani	46	+ .003	+ .22	.039	— .11	+ .11	.14
54	α Tauri	26:	+ .006	— .09	.058	+ .11	+ .02	.17
58	Lalande 9091	29	+0.021	—0.09	±0.044	+0.06	—0.03	±0.12
59	Lalande 9109	31:	— .010	— .11	.068	+ .11	.00	.18
62	Weisse-Bessel iv, 1189	47	— .001	+ .15	.042	+ .14	+ .29	.19
65	α Aurigae	45	— .010	+ .06	.035	— .05	+ .01	.17
68	Weisse-Bessel v, 592	40	— .002	+ .24	.036	— .18	+ .06	.16
71	β Aurigae	24	+0.022	—0.01	±0.031	0.00	—0.01	±0.12
74	α Canis Majoris	39	—0.030	+0.28	0.047	+0.06	+0.34	0.17

TABLE IX (Continued).

Ref. No.	Designation of Star.	No. of Obs.	$\frac{1}{2}d.D\mu$	π	r_π	e	π'	r_1
			s	"	"	"	"	"
77	97 Monocerotis	17	—0.008	+0.17	±0.065	+0.08	+0.25	±0.15
80	Piazzi vi, 305	46	+ .007	— .02	.028	+ .05	+ .03	.13
83	α Geminorum, *seq.*	28	+ .015	— .14	.041	— .03	— .17	.15
86	α Canis Minoris	26	+0.011	+0.32	±0.039	+0.02	+0.34	±0.14
89	Lalande 15290	52	— .020	+ .05	.030	— .06	— .01	.13
91	Lalande 15565	53	— .005	+ .07	.026	.00	+ .07	.13
94	Lalande 16304	40	+ .003	+ .07	.030	+ .05	+ .12	.11
97	o Ursae Majoris	24:	+ .016	+ .08	.055	00	+ .08	.15
100	Lacaille 3386	39	+0.004	—0.08	±0.041	+0.02	—0.06	±0.15
103	A. Oe. 9342, *prec.*	34	— .052	+ .13	.044	— .04	+ .09	.14
106	ι Ursae Majoris	19	+ .015	+ .14	.059	— .03	+ .11	.15
109	10 Ursae Majoris	17	+ .012	— .08	.041	+ .01	— .07	.12
112	Lalande 18115, *prec.*	40	+ .009	+ .12	.032	— .02	+ .10	.12
115	ϑ Ursae Majoris	35	+0.012	+0.10	±0.030	—0.01	+0.09	±0.12
118	Lalande 19022	14:	+ .024	— .11	.089	.00	— .11	.17
121	20 Leonis Minoris	16:	+ .013	+ .05	.080	.00	+ .05	.16
124	A. Oe. 10603	40	— .017	+ .13	.038	.00	+ .13	.15
127	Lalande 21185	18	— .009	+ .36	.047	+ .01	+ .37	.12
130	Lalande 21258	18	—0.041	+0.34	±0.110	+0.03	+0.37	±0.22
133	Fed. 1831, *prec.*	12	— .086	+ .21	.074	— .04	+ .17	.12
136	A. Oe. 11677	17	+ .026	+ .49	.111	+ .04	+ .53	.18
139	Bradley 1584	35	— .031	+ .17	.051	+ .03	+ .20	.13
142	Groombridge 1830	18:	— .013	+ .02	.055	— .03	— .01	.13
145	Lacaille 4955	17	+0.012	+0.02	±0.044	+0.01	+0.03	±0.11
148	Lalande 22954-68	27:	+ .025	— .03	.066	— .05	— .08	.20
151	43 Comae Berenices	34	— .003	+ .09	.053	— .01	+ .08	.14
154	61 Virginis	42	— .002	+ .16	.033	— .02	+ .14	.12
157	Lalande 25224	19	+0.004	+0.24	0.098	+0.01	+0.25	0.16

TABLE IX (Continued).

Ref. No.	Designation of Star.	No. of Obs.	$\frac{1}{2}d.D\mu$	π	r_π	e	π'	r_1
			s	"	"	"	"	"
159	Lalande 25372	36	0.000	+0.40	±0.065	+0.03	+0.43	±0.18
162	α Boötis	40	+ .017	+ .07	.049	.00	+ .07	.17
165	Lalande 26481	24	+ .022	+ .28	.127	+ .02	+ .30	.25
168	Lalande 27026	25:	— .003	— .04	.064	+ .07	+ .03	.19
171	Piazzi xiv, 212, *seq.*	25:	+ .006	+ .14	.065	— .10	+ .04	.16
174	Lalande 27298	27	—0.002	—0.05	±0.036	+0.01	—0.04	±0.12
177	Lalande 27744	59	+ .008	+ .11	.031	+ .01	+ .12	.15
180	6 Serpentis	30	— .013	+ .17	.069	— .05	+ .12	.16
183	Lalande 28358	25	— .005	+ .05	.045	— .03	+ .02	.10
186	Lalande 28607	52	+ .003	+ .02	.035	.00	+ .02	.17
189	γ Serpentis	55	+0.004	+0.11	±0.028	—0.06	+0.05	±0.14
192	τ Coronae Borealis	36	+ .006	+ .08	.047	+ .03	+ .11	.12
195	Lalande 30044	66	— .003	— .03	.032	+ .06	.00	.18
198	η Herculis	53	— .001	+ .21	.035	— .06	+ .15	.15
201	Lalande 30694	60	— .001	+ .03	.036	— .02	+ .01	.20
204	Lalande 31055	53	—0.003	+0.11	±0.030	0.00	+0.11	±0.14
207	36 Ophiuchi, *prec.*	52	+ .006	+ .36	.039	.00	+ .36	.14
208	Bradley 2179	52	— .007	+ .22	.039	+ .01	+ .23	.13
211	72 w Herculis	32	— .006	+ .09	.041	.00	+ .09	.15
214	Weisse-Bessel xvii, 322	24	+ .007	+ .18	.055	— .01	+ .17	.19
217	ν^1 Draconis	62	—0.009	+0.01	±0.028	0.00	+0.01	±0.11
218	ν^2 Draconis	62	— .016	.00	.028	.00	.00	.11
221[1]	A. Oe. 17415-16	43	+ .001	+ .20	.050	+ .02	+ .22	.18
221[2]	A. Oe. 17415-16	44	— .003	+ 34	.051	+ .01	+ .35	.07
225	70 Ophiuchi	62	+ .015	+ .19	.029	.00	+ .19	.16
228	α Lyrae	57	+0.009	+0.10	±0.030	0.00	+0.10	±0.14
231	Pos. Med. 2164, *prec.*	52	—0.010	+0.36	0.043	—0.04	+0.32	0.16

TABLE IX (Continued).

Ref. No.	Designation of Star.	No. of Obs.	$\frac{1}{2}d.D\mu$	π	r_π	e	π'	r_1
			s	″	″	″	″	″
234	Bradley 2388	31	+0.009	—0.04	±0.038	+0.05	+0.01	±0.15
237	31 b Aquilae	52	— .005	+ .02	.030	— .01	+ .01	.17
240	σ Draconis	58	+ .026	+ .17	.021	.00	+ .17	.11
243	α Aquilae	57	—0.005	+0.31	±0.047	—0.09	+0.22	±0.24
246	Lalande 38383	61	.000	— .05	.028	+ .03	— .02	.15
249	Piazzi xx, 29	45	+ .018	— .10	.043	+ .10	.00	.18
252	O. Arg. S. 20452	23:	+ .003	— .16	.151	— .08	— .24	.21
255	β Delphini	56	+ .016	— .13	.027	+ .11	— .02	.13
258	ε Cygni	27	+0.030	—0.13	±0.052	—0.06	—0.19	±0.14
261	61 Cygni, *prec.*	57	+ .013	+ .21	.029	.00	+ .21	.14
264	δ Equulei	56	+ .008	— .02	.041	+ .04	+ .02	.17
267	Lacaille 8777	28	+ .010	— .04	.053	— .07	— .11	.13
270	24 Aquarii	35:	+ .004	— .06	.062	+ .02	— .04	.22
273	κ Pegasi	29	+0.012	—0.10	±0.043	+0.12	+0.02	±0.12
276	31 Pegasi	33:	+ .025	— .16	.060	+ .22	+ .06	.18
279	Bradley 3077	27	+ .001	+ .09	.032	+ .26	+ .35	.10
282	W. B. xxiii, 175	24:	— .011	+ .10	.076	— .06	+ .04	.18
285	Lalande 46650	44	+ .003	+ .39	.092	— .16	+ .23	.17
288[1]	85 Pegasi	55	—0.008	—0.26	±0.038	+0.30	+0.04	±0.17
288[2]	85 Pegasi	59	—0.015	—0.01	±0.038	+0.03	+0.02	±0.17

For values resulting from special solutions for a number of the stars, see the notes given in Table VII for the individual parallax stars.

14[1]. With stars 13 and 15. 14[2]. With stars 13 and 16. Adopted means: $\pi = +0''.28 \pm 0''.06$, $\pi' = +0''.15$.

33[1]. With stars 32 and 34. 33[2]. With stars 32 and 35. Adopted means: $\pi = +0''.06 \pm 0''.05$, $\pi' = +0''.07$.

50[1]. With stars 48 and 52. 50[2]. With stars 49 and 51. Adopted means: $\pi = +0''.28 \pm 0''.035$, $\pi' = +0''.16$.

130. See note to this star in Table VII.

221[1]. With stars 220 and 223. 221[2]. With star 222. Adopted means: $\pi = +0''.27 \pm 0''.036$, $\pi' = +0''.28$.

231. See note to this star in Table VII.

288[1]. With star 287. 288[2]. With star 289.

Appendix to Table IX.—Values of Parallax from Previous Observers.

2.	Pr,	+0.15±0.009,	P.
5.	A,	+0.29±0.025,	M_5.
11.	OΣ,	+0.16±0.015,	M_1.
	S,	+0.17 .05,	M_1.
	D-R,	+0.44 .013	P.
	P,	+0.18 .010,	H.
18.	OΣ,	+0.34±0.052,	M_1.
	S,	+0.08 .060,	M_1.
	Pr,	+0.04 .018,	P.
	J-R,	+0.27 .024,	P.
	P,	+0.13 .013,	H.
50.	G,	+0.17±0.018,	H.
	H,	+0 22 .020,	M_5.
54.	E,	+0.11±0 013,	H.
65.	E,	+0.08±0.016,	H.
74.	E,	+0.41±0.018,	H.
	G,	+0.37 .009,	H*.
	G,	+0 37 .010,	H†.
83.	Jn,	+0.21±0.062,	H.
86.	E,	+0.32±0.018,	H.
89.	P,	+0.02±0.014,	H.
112.	P,	+0.18±0.009	H.
115.	K,	+0.05±0.026,	T.
	P,	+0.09 .012,	H.
118.	K,	+0.06±0.022,	T.
121.	K,	+0.06±0.029,	T.
124.	B,	+0.32±0.023,	M_1.
	K,	+0.18 .024,	T.
	P,	+0.17 .009,	H.
127.	W,	+0.50±0.011,	H.
	K,	+0.43 .030,	T.
130.	A,	+0 26±0.011,	H.
	Kr,	+0.26 .020,	H; same stars as observed by A.
	K,	+0.17±0.027,	T.
133.	Bb,	+0.28±0 04,	M_4.
	W,	+0.20 .05,	M_4?
	L de B	+0.10 .008,	M_1. Preceding three values with *comes* alone as comparison star.
	Bg,	+0.08±0 011,	P; with four comparison stars, including *comes*.
136.	Gm,	+0.24±0.013,	M_4.
	Bg,	+0.19 .013,	P.
	Fr,	+0.10 .006,	H.
142.	A,	+0.12±0.019; combined results of several earlier observers.	
	K,	+0.14±0.026,	T.
151.	P,	+0.11±0.014,	H.
162.	Jn,	+0.14±0.052,	H.
	E,	+0 02 .015,	H.
174.	P,	+0.08±0.021,	H.

* 1881–'83. † 1888–'89.

Appendix to Table IX (Continued).

198. W-B, +0″.40±0″.07.

217. } W-B, +0.30±0.08.
218. }

221. Kr, +0.25±0.021, H.
S, +0.15 .020, M_1.

225. Kr, +0.15±0.006, H; *comes* observed, 1858–'62, d = 6″.2.

Sr, +0.29±0.031, H; *princeps* observed; 16 observations with each of two comparison stars, same stars as Kr's; 1891, d = 2″.2.

228. +0.15; weighted mean of seven best previous determinations, from W. Struve to Hall.
E, +0.08±0.014, H.

231. L, +0.35±0.014, M_4.

237. P, +0.06±0.010, H.

240. Br, +0.25±0.015, M_4.

243. E, +0.23±0.019, H.

261. A Bes +0.44±0.017, H, *med.*
A, +0.56 .016, H, *med.*
B, +0″.47±0″.050, M_4, 61^1.
+0.37 P, 61^1;
simple mean of D-R, Pr, Wl, and K.

The highest two of the twelve individual values by D-R, +0″.52 and +0″.45, depend upon star 260 of the present list as one of a pair of comparison stars in each case, and another individual value of average magnitude, +0″.37, depends upon star 262 as one of a pair of comparison stars.

L-OΣ +0.50±0.025, M_1, 61^2.
L-S, +0 44 .032, M_1, 61^2.
B, +0.47 .032, M_4, 61^2.
H, +0.26 M_4, 61^2;
mean of three values. Probable errors of these values: ±0″.013, ±0″.022, and ±0″.025.
+0.36 P, 61^2;
simple mean of D-R, Pr, Wl, and K.

264. Lv, +0 02±0.035, M_2.

279. Br, +0 07±0.014, M_4.
Gn, +0.28 .047, M_5.
P, +0.13 .008, H.

288. Br, +0.05±0.020, M_1.

The End of Vol. XI.

CORRECTIONS.

Page.			
18.	Tenth line and in the heading of the third and seventh columns of the table.	*For* v	*read* v_1'.
19.	In the heading of the second column of the table.	*For* v	*read* v_1'.
39.	Sixth and tenth lines.	*For* c_1	*read* c_1'.
39.	Eleventh line.	*For* c_2	*read* c_2'.
39.	Eighth line from the bottom.	*For* us	*read* as.
40.	First, second, tenth, and thirteenth lines from the bottom.	*For* c_1 and c_2	*read* c_1' and c_2' *respectively.*
42.	Eighth line.		*Add* The mean value of $\frac{1}{2}\sqrt{pv_1}'$, for each evening and morning epoch of observation, is also given in this column at the close of each group of individual values.
42.	Twenty-sixth line.	*For* In the last column	*read* At the foot of the table for each star.
43.	Twenty-eighth line.	*For* c_1 and c_2	*read* c_1' and c_2' *respectively.*
76 to 185 inclusive.			Wherever the sub-titles Rejected Observation or Rejected Observations appear, precede such titles with the observation number or numbers, from the first column, in the line or lines next following.
78.	No. 29, second column.	*For* 19.2	*read* 19.
78.	No. 30, second column.	*For* 25	*read* 25.2.
105.	Heading of eighth column.	*For* $\frac{1}{2}\sqrt{p_1}'$	*read* $\frac{1}{2}\sqrt{p.v_1}'$.
130.	Note 37.	*For* images	*read* image.
199.	Note following the (†).	*For* 99, 100, 101	*read* 102, 103, 104.
213.	Stars 120, 121, 122.	*For* $y = +0.063$	*read* $y = +0.263$.
229.	Heading of fifth column.	*For* n_1'	*read* $10n_1'$
355.	Mean value of $\frac{1}{2}\sqrt{pv_1}'$ for Observations 9 —22.	*For* —14	*read* —16.

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ADDITIONAL CORRECTIONS.

Page			
1.	Fourth column of the table, opposite Total.	*For* 4.4	*read* 34.4.
28.	At the bottom.	*For* $-0.''13$ to $+0.''04$	*read* $-0.''14$ to $+0.''03$.
47.	Tenth line from the bottom.	*For* 287	*read* 288.
52.	1894, July 3.4.	*Under* c	*read* $-0.s05$.
57.	Table III. Proportional Parts.		*Dele* h over the column of arguments.
69.	Star 289.		*Read* B. D. $+25$, 5068.
83.	Heading of eighth column.	*For* $\frac{1}{2}\sqrt{p_1'}$	*read* $\frac{1}{2}\sqrt{pv_1'}$.
103.	Heading of eighth column.	*For* $\frac{1}{2}\sqrt{p_1'}$	*read* $\frac{1}{2}\sqrt{pv_1'}$.
111.	Third column, bottom line.	*For* $+0.93$	*read* -0.93.
117.	In the line next to the last and in the last line, under Images.		*Read* 4.5 4.5 and 3 3 *respectively.*
130.	Heading of sixth column.		*Read* $\Delta_1 C.c_1'$.
154.	Observation No. 41, under Date.		*Read* 20.
199.	Third column, first and fourth lines from the bottom.	*For* $+$	*read* $-$.
211.	Heading of fifth column.	*For* n_1'	*read* $10n_1'$.
231.	Sixth line from the bottom.	*For* Stars 143 and 146	*read* Stars 145 and 146.
270.	Heading of sixth column.		*Read* $\Delta_1 C.c_1'$.
287.	$[pvv]$.	*For* 0.3856	*read* 0.3356.
309.	Following the value of π.	*For* ± 0	*read* $\pm 0.''039$.
318.	Heading of sixth column.		*Read* $\Delta_1 C.c_1'$.

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